The Journal of the
American Medical Association

VOL. XXX. CHICAGO, ILLINOIS, APRIL 16, 1898. No. 16.

ORIGINAL ARTICLES.

ANATOMIC RESEARCHES ON YELLOW FEVER.

BY EDWIN KLEBS, M.D.

PROFESSOR OF PATHOLOGY RUSH MEDICAL COLLEGE AND POST-GRADUATE MEDICAL SCHOOL.

CHICAGO, ILL.

Yellow fever, a true American disease, originating in the West Indies, is a permanent menace to the United States. So long as unhygienic conditions persist in Cuba, supported by a state of, it seems, permanent revolution and destruction, the southern parts of this land will never enjoy the security so necessary for the development of a general happy state of the population. But it may be asked, Is the terror excited by such invasions and the rigorous quarantine executed in consequence of this feeling of the population really necessary? We have learned in the last years by a more intimate knowledge of the causes and the manner of infection, that the severest diseases lose most of their danger and cease to excite the population. Relying on the possibility of securing himself against the infection, man will no more relinquish his home in blind terror. I might refer to the "Go-not-away-Club" of Mobile and possibly other localities in the infected parts of the South as a commencement of a deeper and more sure insight into the nature of this disease and infectious diseases in general.

Indeed modern bacteriologic science has shown us that very few infectious diseases are disseminated through the air. The big fires burning in the streets for the purpose of cleaning the air in times of bubonic pest, are seen no more. Only the quarantines remember this old idea that the person of man is the conveyor of the disease and must, as such, be retained under observation as long as the disease is not broken out.

The more cruel house quarantine, surrounding an infected inhabitant, which prohibits every movement of the persons included, together with the general quarantine, the so-called shot-gun quarantine, has been in general use, in the broadest way, in the last epidemic of yellow fever in the Southern States of the Union; the first exposing the sound members of a household to the infection; the second compelling the well-to-do people to leave the country before they should become prisoners in their own homes.

Science has corroborated the old, popular conviction that the body of the sick contains the germs of the disease and can spread them in different manners, depending upon the parts in which the germs are developing and from the biologic conditions of these germs. No better opportunity for dispersion of germs can be found than in diphtheria, where the bacilli are developing on the surface of the mucous membranes of the mouth, the pharynx or the nose and throat. Doubtless these germs will be spread around the diseased person by cough and expectoration, but we do not on this account confine the whole family. We have done enough if we seclude the patient in a well aired room and with disinfectants destroy the germs in the immediate surroundings, and prohibit contact with him by other persons except well trained nurses. No other means are needed in typhoid fever and Asiatic cholera.

As to the general quarantine, used for the seclusion of towns and lands, its insufficient character is shown by so many experiences, that no modern hygienist will now advise it. That this measure is only efficient in a few instances in which a despotic ruler secludes himself and his court by closely posted soldiers, is shown by the experience of Zarskoje-Selo at the time cholera spread over the world in spite of all quarantines on the frontiers of the different states. Instead of this insufficient quarantine, in the last epidemic of cholera in this decade, the European governments, Germany first, organized a system of medical observation in all directions in which the floating population moved, in the streets, the railroads and the rivers, one observation line following the other at due distance. The infected persons could be detected and retained in a much surer way than by the old fixed quarantine. This same system was executed with full effect in our land when smallpox invaded the South. Why should it not be in a yellow fever epidemic? The answer lies in the blind terror, provoked by this disease, only sustained by our ignorance of the natural manner of the dissemination of this disease. So every addition to our knowledge on the nature of the disease must help to abolish a very natural, but also very dangerous feeling.

To understand the manner of dissemination of yellow fever we must bear in mind the following facts:

1. The disease is transported by sick people, not by goods and not by water. The two latter are absolutely excluded, as no case is known in which it was imported by the products of West India, Central or South America. It is introduced largely in the warmer regions of North America, Africa and Europe. The epidemics in 1817 (Spain, Livourne), must have originated by lingering diseases on board the ships. Without this suggestion it can not be understood why the same accident did not occur in our times with a much greater commerce. The few cases that arrive in Europe are promptly caught in the landing harbor; the goods are not infectious.

That water does not act as a propagator of the disease is shown by the fact that an epidemic never follows a river downward, but spreads upward, as in the Mississippi Valley. In smaller towns, as in Mobile, Ala., different centers of infection are formed, in which are found the first cases imported. That was demonstrated to me by Dr. Hermann Mohr, who visited with

me all parts of Mobile in which cases of yellow fever had occurred.

2. The personal contagion is not direct or confined only to a very near contact. In many cases of supposed direct contagion the infection was taken up before and in another manner. The best proof for this opinion is given in the recent publication of Dr. Hamilton R. Jones of the Isolation Hospital in New Orleans (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1898, No. 9). He writes: "No case of yellow fever was traced to the Hospital in spite of the fact that three of the Sisters had not had it. The ambulance superintendent had never had it, and was frequently covered with black vomit. Fourteen cases passed through the wards, who did not have the disease, none of whom contracted it, and of the army of pioneers engaged in destroying the infected buildings and in general cleaning up, numbering in all considerably over a hundred persons, not one contracted the disease."

Certainly, the greatest antiseptic precautions were taken in the Hospital, but the contagion by the air, this bugbear of yellow fever, favored also by physicians, would not have been excluded by such means.

3. The contagion, emanating from an individual, must be deposited in his surroundings before it can infect other individuals. That this is so is shown by a yellow fever case originating in Whistler (near Mobile), in December, 1897, long after the epidemic in Mobile was extinguished. A workman of the railroad moved to a house in which there had been cases months before, and which had been cleaned and disinfected; there he was infected and died suddenly.

4. The yellow fever often develops very slowly in certain places; the nature of the disease is only detected later, when graver cases follow the lighter ones. So in Ocean Springs, where the first cases were considered as dengue.

The State Board of Health of Mississippi declared that the first case was yellow fever imported from Guatemala in March. The same statement was made in Mobile.

The older observers, as Gérardin of New Orleans (1817), speak of endemic and epidemic forms of yellow fever. The first form was at this time present in New Orleans, as it is now present in Havana, and many places in Central America and Brazil. Near Bahia, therefore, the German-Lloyd steamship line has a station for its sailors, to which they are removed immediately after arrival.

We must conclude from all this, that the desinfection of the sick and their surroundings is fully sufficient to destroy the germs and check the disease.

We come now to the second part of our subject; the germs of yellow fever.

G. M. Sternberg has made a very careful examination of the question and has shown that all the bacteria which he and others before him had found, seemed not to be the true causes of the disease. Only when Sanarelli published his researches did he doubt, and think that his X-bacillus was probably identical with the bacterium discovered by Sanarelli, inclined to this opinion, it seems, by the apparent results of inoculations made by the Italian author. But in carefully studying the various publications of Sanarelli, I could not suppress some doubts. If the relatively large and slightly stainable bacillus, known as Sanarelli's bacillus icteroides, was the true cause of yellow fever it would be curious if it had not been detected before. Years ago I had examined preparations received from Rio de Janeiro and could not detect any bacillus in the fatty degenerated liver. Sanarelli could not find his bacillus in every case, which seems strange, if the bacillus is so easily stained and cultivated. Further, Sanarelli's is a pronounced water bacillus, and I must accentuate that yellow fever is not conveyed by drinking water. If I had not in younger years fallen into possibly the same error, I would not venture an opposition, the more as I am not quite sure whether Sanarelli has infected men with his bacillus or only with the toxins prepared from his cultures. I hope the last, for the first experiment would seem to be unjustifiable, the more as it would be futile, if executed in a place in which yellow fever was present. As this may be, I will tell my own error. As I worked, more than twenty years ago in Italy, with Tommasi-Crudeli on the causes of malaria, we found a bacillus in the malarial earth which cultivated and injected into rabbits, gave intermittent fever with enormous swelling of the spleen. We were very sure that we had found the true cause of this disease, for, what better proof could be thought of than the reproduction or synthesis of such a characteristic disease as malaria? But we were very soon undeceived by Marchiafava, who as assistant of my friend, had followed our researches. He found the plasmodium in the blood, and it was sustained by that glorious anatomic discovery the older, but at this time slighted observation of Laveran.

Naturally, in our cultures we had, besides our bacillus, the malaria protozoa, that is as yet not known or ever detected outside of the body. Could not the same error occur in the experiments of Sanarelli, as yellow fever is by no means as typic an affection as malaria?

How can we go out of this trap that nature has placed in the way of truth-searching pathologists? Only by anatomic research, which has built up our science, and will accomplish it if perfection is at all attainable; what we can observe with our eyes can not be delusion.

Among the organisms vegetating in higher animals the protozoa or protists seem to play a foremost rôle. They have the property to act as cell parasites. I have shown, as the young assistant of Virchow, that the psorospermia, developing in the epithelial cells of the intestines and the gall ducts of rabbits (seen first by Remak), were living bodies, not eggs of worms, and that they promote, after having penetrated into the epithelial cell, a progressive hypertrophy of these elements. The two constitute a sort of partnership. Much later the plasmodium malariæ, living in the interior of red blood corpuscles, was detected. A third form are the amebæ in dysentery and tropic liver-abscess, on which Kartulis in Cairo (Egypt), and Councilman in Boston, Mass., have done excellent work. These are not intracellular, but appear as the psorospermia (or coccidia) in the passage from the intestine to the liver, a fact that will also be of high value in the study of yellow fever.

As I commenced to study yellow fever preparations, received from Dr. Hermann Mohr in Mobile, Ala. (from two cases, preserved in alcohol; stomach, duodenum, pancreas, spleen, liver, kidney and heart), I thought to try the different anilin dyes in combinations, hoping that if the organs contained foreign organisms these, like the body cells, would have a different power of election for one of these stains.

I was not deceived. First, using mixtures of methylen blue and saffranin, I found a very surprising pic-

ture in the liver of yellow fever. But the best results were given by a mixture of seven parts of my parafuchsin kresol solution for tubercle bacilli, mixed with three parts of methylen blue (concentrated solution in borax 5 per cent.), and three parts methylen green, 1 per cent. This mixture, which is somewhat thick, can be used full strength or diluted with equal parts of distilled water. If diluted, the staining must be prolonged. The decoloration and differentiation must be made very carefully, if alcohol is used; the blue color of the slice, which should not be thicker than 1/100 millimeter, must never be eliminated. The use of anilin oil and xylol (Weigert) is far better for the decoloration.

If this method is applied correctly, the preparations of the liver give a very surprising picture. Between the lines of the bluish tinged liver cells one remarks intensely stained red masses, oftentimes forming stripes and masses larger than the liver cells. The last are transformed and nearly destroyed by fatty degeneration in the median parts of the acini, and compressed by the red masses, whereas in the center and peripheral parts only isolated red spots are disposed between the liver cells. The red masses consist of round or oval-shaped, or irregular balls which will not conglutinate.

With higher powers, one remarks two constituents of these red masses, very deep stained round, oval or egg-shaped bodies, and slightly stained masses, surrounding the first. Oftentimes in one red mass are included two or more of these bodies, somewhat larger than a human red blood corpuscle, but oval-shaped and of quite homogeneous structure. It is not difficult to demonstrate that the greater, slightly reddened masses are no other than very enlarged and, in their coloring qualities, deeply changed leucocytes. Oftentimes they contain the blue stained nucleus, somewhat altered, elongated or otherwise deformed. We can seldom detect well conserved leucocytes, which contain the red body included in the blue stained protoplasm. But not all of these red bodies are included in cells. We also find them free between the liver cells, and observe here the largest forms, which measure more than thirteen mikres in length and twelve in breadth, mostly egg-shaped, with one broader and one smaller pole. These contain, mostly, a greater or smaller number of vacuoles and brownish pigment. These larger bodies are not alone situated between, but also in the interior of the liver cells.

When this dislocation takes place, the liver cells show degeneration in the form of clear round spaces, oftentimes melting together, as is seen in Figure 1, on the left side. If these spaces are all filled up with fat drops it can not be decided, the preparation having been treated with alcohol, but is not very probable, as the edges of these spaces are not infrequently ragged and irregular. Later only it seems to follow the deposit of fat, converting the whole protoplasm to a network with round meshes, as seen in Figure 2.

The question now arises, in what manner do the red bodies penetrate into the interior of the liver cells? Figure 1 gives the answer. In the second cell row from the right side we remark two small, red, oval-shaped bodies, measuring only two or three mikres in diameter, which lie imbedded in the bluish protoplasm of the hepatic cell, surrounded by a small clear space. If these foreign bodies, as may be suggested, are living organisms, one must suppose that the oval-shaped bodies, first developed in the leucocytes, lying in the interstitial tissue, may divide and penetrate, in their earliest forms, into the interior of the liver cells, there growing more and more; they eat up and destroy the protoplasm of the liver cell. This destructive process results only in the demolition of the cell substance, which seems, in the commencement of the process, to be somewhat swollen, so that the lines of demarcation, principally in the radial direction, are effaced. The nuclei only show a slight proliferation and usually contain two or more nucleoli, often of excessive dimension.

It is very difficult to decide in which part of the interstitial tissue the oval bodies are primarily deposited. As the gall ducts and vessels seem to be free from them (I found such a body in a thrombosed central vein only once), it must be supposed that they are lying in the lymphatic spaces, which suggestion is supported by the fact that usually where the oval bodies are lying thronged in rows, leucocytes are present in the same spaces (Fig. 2), which show the usual form of lymphocytes, with great round, dark stained nucleus and small protoplasm.

Inflammatory processes are observed only in a small extension around the portal veins.

I am not informed as to the general conformation and aspect of the two livers examined, which gave me identical results, but I think that they were of the same aspect as described by Hamilton P. Jones as yellow, dead-leaf or boxwood in color, and bloodless (l. c., p. 460). Possibly they may have been flabby in this stage, with somewhat wrinkled surface; should this be so, the resemblance to some forms of acute yellow atrophy of the liver would be complete. But I will refer the question to the pathologic anatomists who have made postmortems in yellow fever cases. Possibly this affection will show the way to the detection of the true cause of these obscure diseases, so often originating from a seemingly simple catarrhal icterus.

The sharply defined form of these bodies, their different staining, their disposition in the interstitial tissue and in the liver cells, their forming of vacuoles and pigment in the more advanced stages, certainly indicate them to be parasites of the class of protozoa; but, having only dead material before me, I will not decide the question, unless they could be found in other organs in physiologic connection with the liver.

The spleen, pancreas and heart and the blood contained in these organs gave negative results. The stomach and duodenum always show deep alterations in yellow fever. "The mucous membrane of the stomach," says Jones, "was intensely congested, softened and eroded—the duodenum, as a general rule, presented the above conditions, intensified. This condition, however, in the majority of cases extended only down to the opening of the common bile duct" (l. c., pp. 459 and 460). What do our preparations show? We can only say, an intense gastritis and duodenitis, the latter more developed than the former, but the distribution of the emigration foci is of the same character in each. The infiltration of leucocytes always commences around the vessels, penetrating the superficial layer of muscle fibers. In the duodenum these infiltrations are larger and extend oftentimes to the surface of the mucous membrane. But in the two organs the higher parts of the interglandular tissue are filled up with small-edged cells, the nucleus not so deep stained as in the emigrated cells, fibroblasts (Ziegler) or hyperplastic connective tissue cells. The same oval-shaped and red staining bodies were always

present in the emigration centers of these organs, not in very great numbers, but never absent. The same were also found nearer the surface, in the hyperplastic part of the interstitial tissue, but seldom in a gland, and if present, were external to the epithelial cells (Fig. 3). But here another highly interesting form not present in the liver was also found, namely, nearly circular groups of small round bodies, stained in the same manner as the oval bodies. It may be remarked here, that all these bodies in the duodenum and stomach stain a deeper blue than in the liver. The red color is perceptible only after protracted decoloration.

I might suggest that these blackberry forms represent sporulation. If these spores, developed in the higher layers of the mucous membrane, are set free, they may penetrate into the mucous glands or lymphatic vessels and be transported by the way of the bile ducts or lymphatics to the liver, but this can only be ascertained in a postmortem examination. It seems very probable that the infection is transferred to the liver in one of these ways.

By these observations, to be completed by observation on the living and dead, we can very well understand the source of the disease, which is first a true gastro-duodenitis, remaining such in the milder, lingering or endemic cases of some countries, but the danger of the epidemic form commences with the immigration of the protozoa into the liver.

That the infection with these organisms, showing the nearest relation to coccidia and amebæ, which immigrate into the liver from the duodenum, deprives yellow fever of its terror, is natural, as watery fluids, fruits, vegetables and greens only can be considered as carriers of the infection.

The kidneys are always altered in the graver cases of yellow fever. In 202 cases of yellow fever observed by Jones, albuminuria was found in 125 of the non-fatal, and in all the fatal cases (45), in all 170, or 84 per cent. The amount of albumin varied from a trace to 80 per cent. Yellow stained casts and scanty urine were considered unfavorable symptoms, according to the same observer. The kidneys were generally a "brownish-yellow, larger and softer than normal, loaded with fat, and were generally intensely congested" (in the medullary substance probably). This is the general aspect in every septic kidney, very similar to the kidney in acute atrophy of the liver.

The microscopic examination shows no inflammation of the kidneys (it is wrong to speak of parenchymatous nephritis in these cases, as there is no proliferation of epithelial cells, nor any migrative process in the interstitial tissue). The convoluted tubules of the cortex alone show alterations, being filled up and vastly distended by a granular exudation; the epithelial cells here are ragged, and often compressed by the exudation. The glomeruli are free, and are also sometimes compressed by the same exudation. In my cases, casts were not formed in so great a quantity as is found in true nephritis.

This affection could be considered as a toxic one, but the differences in the effects on kidneys by true bacteria toxins is very remarkable, affecting the glomeruli in scarlatina (glomerulo-nephritis), and in Asiatic cholera promoting the destruction of the nuclei of the secreting epithelial cells (karyolysis). With exception of the exudation into the glomeruli and tubules, only the fatty degeneration of the cortex in phosphorus and other intoxications resembles this affection in yellow fever.

This condition indicates a true dissolution and hindered oxygenation of the blood, beginning in life; but we should expect then to detect free hemoglobin in the urine.

I will repeat, that this new theory of yellow fever, announcing the affection as a gastro-duodenitis, with consequent atrophy of the liver, originated by certain protozoa, must be supported by the examination of yellow fever patients. I hope to fulfil this task, but I think that we will now be better prepared to meet this work of high pathologic and hygienic importance to the United States.

SUMMARY OF PATHOLOGIC AND BACTERIOLOGIC WORK DONE AT ISOLATION HOSPITAL, NEW ORLEANS, LOUISIANA.

BY O. L. POTHIER, M.D.

Pathologist and Bacteriolgist, Charity Hospital; Assistant Demonstrator of Histology and Bacteriology, Medical Department Tulane University.

NEW ORLEANS, LA.

In presenting this paper I will limit its scope to the pathologic conditions found, and to the bacteriologic work done with the cultures obtained from the cases of yellow fever at the Isolation Hospital, principally to corroborate the claims of Sanarelli.

The pathology comprises the examination of urine and the blood, the autopsies and the bacteriologic research of Sanarelli's bacillus icteroides.

There were 348 specimens of urine and 154 of blood examined, and 51 autopsies were held. The 154 specimens of blood represent as many patients from whom blood was taken and examined. The examinations of urine were made as they generally are in the pathologic department of the Charity Hospital, only they were made oftener as a guide in the treatment of the cases. Albumin was found in all the cases of yellow fever during the course of the disease. It usually appeared before the fifth day, seldom after. Bile was also present in all the cases, usually appearing before the albumin or concomitantly. Except in mild cases renal casts were found and include the different varieties.

Blood examinations were made in every case when possible. These were made: 1, to determine the presence or absence of the malarial hematozoon; 2, to determine the influence of yellow fever on the bacillus of typhoid, Widal's reaction; 3, to determine the proportion of red and white blood corpuscles; 4, to determine the changes taking place in the blood; 5, to determine special reaction of yellow fever blood with the bacillus icteroides of Sanarelli; 6, to determine the percentage of hemoglobin; 7, to make cultures from the living blood.

The malarial hematozoon was frequently found, especially during the period of convalescence. The variety most frequently seen was the crescentic form, which belongs more especially to the estivo-autumnal type of malaria.

Though Widal's reaction was tested in all cases when practicable it invariably gave negative results. The method employed was Johnson's modification of that of Widal, *e.g.* one part of dissolved dried blood to ten parts of an attenuated pure culture of bacillus of typhoid, and the time limit was fifteen minutes. The solvent for the dried blood was either sterile bouillon or filtered sterilized rain water. In all cases

of yellow fever examined the test was invariably negative, and the few cases in which a positive reaction took place was found to be typical cases of typhoid fever.

The blood count made in yellow fever cases never gave below 4,280,000 red blood corpuscles, and in one case that proved fatal gave 5,000,000 to 1 cubic millimeter of blood. The white cells varied from 20,000 to 4,660.

The changes in the yellow fever blood were studied in fresh preparations and in colored specimens, these last being colored with the Ehrlich's Biondi's stain, and others with an aqueous solution of methyl violet beta; for these stained preparations four cover-glass smears were taken from each patient. In the fresh preparations, as a rule, no alterations could be detected in the corpuscles. Occasionally the corpuscles appeared vacuolated and crenated, but as these changes were more marked at the edges of the preparations and took place twenty to twenty-five minutes after they were made, these appearances were considered artificial and due most probably to evaporation and changes of temperature.

In the stained preparations the red corpuscles retained their normal aspect generally; occasionally a few vacuoles were found. The red corpuscles stained normally and the usual white corpuscles, lymphocytes, large and small, polymorphonuclear neutrophiles, and eosinophiles are found. In a few specimens a few myelocytes were found, also normoblasts and extruded nuclei. I could not detect any increase in eosinophiles. In many of the preparations stained with methyl violet beta, these being made especially for the detection of bacteria, short rounded-end bacilli were found. Besides these, in a few preparations, long chains of slender bacilli were found associated with micrococci, usually in groups of two, and short rounded-end bacilli.

The agglutination reaction was applied to the following specimens of blood with the bacillus icteroides. The method employed was that of Wyatt Johnson, and the solution of dried blood was made in one series with sterile bouillon, and in the others with sterilized distilled water. In some, ordinary slides were used and in others hanging drops. The solution being one to ten the result was as follows:

Specimens examined on ordinary slides with sterile bouillon as solvent.

1. Ward No. 1, bed No. 2; preparation made at 4:08 P.M.; bacilli are less active at 4:55; no clumping at 5:00; a few clumps at 5:25 P.M.

2. F. Stellano; preparation made at 4:25 P.M.; bacilli are still active at 5:00; at 5:10 less active; at 5:18 P.M., clumping.

3. Chisolm; preparation made at 10:50 P.M.; examined until 12:10 P.M. without clumping or immotility.

4. Bed No. 9; preparation observed for thirty-two minutes; bacilli still active; slight clumping.

Second preparation from Chisolm prepared at 11:25 A.M.; observed until 12 M.; ringed with vaselin and then put into incubator until 3:40 P.M.; bacilli were still active; no clumps.

Third preparation from Chisolm at the same time, and solvent used being sterilized filtered water, and tested as above, the bacilli were found less active; no clumps.

5. My own blood, first preparation, solution one to ten made at 4:10 P.M.; observed twenty minutes ringed with vaselin; no clumping; bacilli active; put in incubator at 4:40 P.M.; next morning at 11:30 found majority of bacilli immotile.

Second preparation, one to five, made at 4:24 P.M.; observed fifteen minutes, ringed with vaselin; no clumping; bacilli active; put in incubator at 4:40; at 11:30 next morning majority of bacilli immotile.

6. Blood of Locassio, prepared at 11:15 A.M.; at 11:22 a few bacilli clumped; majority motile; at 1 P.M. put in incubator and examined at 4:45 P.M.; clumping still persisting; bacilli less active.

Ward No. 1, bed No. 9, made at 11:20 A.M.; at 11:27 some clumping; majority of bacilli motile; 12:02 P.M. bacilli still motile; examined until 1 P.M., when preparation was put in incubator and examined at 4:45 P.M.; bacilli less active; clumps persisting.

7. Frank French; preparation at 9:40 A.M.; examined for thirty minutes; bacilli forming; then small clumps; others motile; examined at intervals until 12 M., during which time bacilli were less active with clumps still persisting.

Hanging drops preparation:

8. Mary Stellano; first preparation; solution made with sterile bouillon at 4:40 P.M.; examined until 5:15 P.M, when a few clumps were noticed; other bacilli motile; examined until 5:25 P.M.; clumps persisting, while other bacilli were motile.

9. Will Kynion; preparation made at 10:22 A.M.; solution with sterilized distilled water, one to ten; examined until 1 P.M.; found bacilli clumping during that time, but bacilli in clumps are motile and majority of free bacilli motile; put in incubator until 4 P.M.; re-examined until 5 P.M.; clumping persisting; bacilli less active but still motile.

Mary Stellano; second preparation with sterilized distilled water, made at 10:35 A.M.; examined until 1 P.M.; clumping occurring, but majority of bacilli motile; put in incubator at 1 P.M. and re-examined at 4 P.M.; until 5 P.M. the clumps persisting and bacilli less active.

Locassio's blood; second preparation made at 4 P.M., as above; examined until 5 P.M., during which time slight clumping appeared; bacilli still motile; put in incubator and re-examined next day, finding persistance of clumps; bacilli less active.

10. Bed No. 25; preparation made at 4:04 P.M.; examined until 5 P.M.; no clumping; bacilli motile, and after being put in incubator were found motile next morning; no clumps.

11. Bed No. 9; prepared at 4.02 P.M.; examined until 5 P.M.; bacilli yet motile when put in incubator, and next morning found same condition; no clumps.

12. Bed No. 19; prepared at 4:22 P.M.; examined until 5:05 P.M., during that time a few clumps; found bacilli motile; put in incubator and re-examined at 9:30 next morning; bacilli motile though clumps persisted.

These are the only cases that I have had opportunity to test and the number is too small to allow any conclusions.

The percentage of hemoglobin was estimated with Gower's hemoglobinometer, using as a control test the percentage of hemoglobin obtained from one of the physicians of the hospital; this control gave 90 per cent. hemoglobin. The hemoglobin was tested in recent cases, during course of disease, and in convalescents. In the recent cases, and during the course of the disease the percentage of hemoglobin never exceeded 72 per cent., except in one case, which proved fatal, where it was found as high as the control, 90 per cent.; the lowest percentage in this series was 50. In convalescents the lowest percentage was 64 and the highest 80. These percentages show a decided loss of hemoglobin during the disease and a slow return to the normal in the convalescents.

The autopsies, fifty-one in number, are classified as follows: There were thirty-one in which none but the typical pathologic lesions of the disease were found; fourteen in which there were evidences of pre-existing chronic changes in the liver, the kidneys and blood vessels, these were more especially alcoholics; six that did not present any of the pathologic lesions of yellow fever. Of these last, one was a case of typhoid fever; the second one of general peritonitis from rupture of pus tubes; a third, general acute tuberculosis with chronic endocarditis, in an old negro man; the fourth, septicemia following pelvic peritonitis due to pus tubes; the fifth, tertiary syphilis; in this last case the culture tubes inoculated remained perfectly sterile; the sixth, was pneumonia in an alcoholic.

In all the autopsies from yellow fever cases the typical jaundice was uniformly present, more marked in some cases than in others, and the marked bluish

pink postmortem hypostasis about the dependent parts of body, face and neck was also noticeable. These appearances of the yellow fever cases formed a marked contrast with the other five, where the jaundice was not observed and the hypostasis less marked. All the tissues were generally found bile stained, in some instances very intensely.

On opening the bodies one of the first things that attracted attention was the marked fluidity of the blood contained in the heart and large vessels, and the congestion of the tissues.

The heart was usually full of blood, myocardium paler than normal, and fatty degeneration the rule. A special point of interest here was the intense congestion of the vasa vasorum of the large vessels at the base of heart, and also the congestion of the pericardium. In a few cases atheromatous changes of the valves of the heart and of the vessels were found.

The lungs were unusually free from chronic changes; the absence of tubercles, in the yellow fever cases, was the rule. In several where the mucous membrane of the trachea and bronchi was examined, it was found markedly congested, but not more than the surrounding organs.

The spleen was usually normal, except in a few cases where there was evidence of previous attacks of malaria, and chronic changes taking place.

The liver was generally found fatty, in some cases extremely so. The large vessels were usually dry but the portal capillaries congested to the extent, at times, of forming a marked delineation of the lobules. The gall bladder contained, as a rule, a small quantity of fluid and was seldom full. Besides these changes in the liver, in ten autopsies the organ was found cirrhosed.

The mesenteric vessels were generally full and gorged with blood and the different folds of the peritoneum universally congested. The mesenteric glands were usually normal.

The stomach presented the most characteristic congestion of its mucous membrane, which was swollen, red, eroded and contained hemorrhagic points in its substance. This congestion and changes, though universal throughout the organ, was more especially marked on the anterior wall of the organ and in the cardiac extremity, fading away as it reached the pylorus.

This congestion, less in intensity, extended as a rule to the mucous membrane of the duodenum, as far as the entrance of the common bile duct, beyond which it ceased in the majority of cases.

In a few cases the same condition observed in the stomach was found in the intestines, from cardiac extremity of stomach to rectum. In these the contents were of a dark meconium-like matter, of a black color and of very thick consistency. The same lesions found in the stomach were repeated in the mucosa of the whole intestinal tract.

The kidneys usually presented an acute inflammatory condition being congested, at times intensely so. In some cases infarcts were found, and also interstitial hemorrhages; these hemorrhages, usually small, attained in some the size of a pigeon's egg. Although generally in the substance of the organ, these hemorrhages were sometimes found in the pelvis and calices of the organ. The fatty degeneration was well marked, as a rule, and characteristic in its situation in the majority of autopsies. It was more marked in the cortex immediately at the edge of the malpighian pyramids, forming arches around that border and radiating toward the cortex of the organ. In a few cases this degeneration was contrasted by the intense congestion in the same situation. This peculiar arrangement of the fatty degeneration was noticed in the first autopsy on a yellow fever case held in this city during the last epidemic and was afterward noted in every case. Out of the forty-five cases of yellow fever on which an autopsy was held at the Isolation Hospital this characteristic arrangement of the fatty degeneration occurred in thirty-five. In the ten remaining cases, I am told that it did occur, but as I did not find it recorded in the notes of the autopsies, I have not included them. Besides these marked changes, the kidney presented evidences of chronic changes in fourteen cases.

The brain was examined in only one case and the same congestion prevalent in other organs was also marked here. The meninges and surface of brain were intensely congested; the puncta vasculosa in the centrum ovale were decidedly marked and the whole organ was intensely congested; there was, however, no other sign of any inflammatory condition. The lack of time prevented us from making a more systematic examination of the nervous centers.

An average of five primary cultures were made at every autopsy; one from the blood of the heart and large vessels, one from the liver, one from the spleen, one from the kidneys and one from the lungs. In several cases, pieces from organs (liver, kidneys and spleen) were carefully removed and enclosed in antiseptic and aseptic wrappers and incubated for twelve to fourteen hours, and then inoculated in culture media.

As these did not give as a rule, any better results than the cultures obtained at autopsies, on account of the great loss of time entailed and the difficulty in transporting these pieces to the laboratory, the practice was abandoned. This made an aggregate of 255 primary cultures obtained from autopsies; of these a few remained totally sterile. Those that gave cultures were plated as soon as practicable after the autopsy. The primary cultures considered the best for the purpose were chosen for these plates, and cultures were made to test their purity. Several of these second cultures had to be plated over, in the attempt to eliminate the contaminating bacteria. The bacillus coli communis was found omnipresent, and difficult to eliminate, also in a few autopsies, a form of proteus with fluorescence. Several autopsies continued to produce the bacillus coli communis after several platings. The tests applied were the cultivation in ordinary bouillon, in peptone solution for the indol test, in litmus milk, in glucose and lactose bouillon, in gelatin, the plating of pure cultures, staining by Gram's method, replanting in tubes and inoculation of animals.

After having plated all the autopsies and recognizing that in several plates characteristic growths were present it was impossible to carry through all of them. I chose three that from their appearance and examination led me to believe that I had obtained a pure culture, and subjected them to the different tests described above, and carried on the experiments on animals with them. In all the different tests a pure culture of bacillus icteroides Sanarelli was used as comparison. These cultures, when subjected to the tests as described by Sanarelli, in his memoir, were found to be of slow growth in ordinary bouillon, showing a slight

cloudiness in twenty-four hours. It is a short automotile bacillus and produces marked fermentation in glucose bouillon; in lactose bouillon a very faint fermentation; in peptone solution, after twenty-four and forty-eight hours growth, gives no indol reaction, without addition of nitrites, and, when these are added, the reaction is very faint after twenty-four hours incubation; cultivated in litmus milk, even after twenty days incubation, there is no coagulation of milk and the color is not apparently changed; when subjected to Gram's method, they do not take up the stain.

In one of the autopsies (No. 40) the growth was obtained with difficulty, being exceedingly slow in ordinary bouillon, and on agar the growth was scant. This culture, inoculated in a rabbit, gave a pure culture more active and vigorous than the first, and after again subjecting it to the tests it was used as a pure culture giving better growths. These cultures in gelatin did not liquefy.

The experiments on animals were eighteen in number. In the inoculation of animals one is generally inoculated with a twenty-four hours bouillon culture of bacillus icteroides Sanarelli, as control, and the other or others with the same quantity of a bouillon culture of the same age, from the cultures to be tested.

The animals injected were two guinea pigs, fourteen rabits and two dogs. Of these the two guinea pigs were injected with juice of organ mixed with sterile bouillon; No. 1 from juice of liver from autopsy No. 2; and No. 2 from kidney of same autopsy. The result is as follows: Guinea pig No. 1 was injected on Oct. 1, 1897, at 5 P.M., with 1.17 c.c. of an emulsion of equal parts of sterile bouillon and liver juice, in the peritoneal cavity. Animal did not eat at evening feeding; Oct. 2, 1897, did not eat and is quiet, does not care to move; at 12 M. animal in dying condition; at 12:30 P.M., found dead in cage, being nineteen and one-half hours after inoculation. Autopsy at 4:30 P.M.; postmortem rigidity marked; peritoneal cavity contains good quantity of fluid; membrane ecchymotic and congested; is smeared with purulence and the ecchymotic patches on diaphragm; lungs congested and ecchymotic; heart contracted and contains slight amount of blood; liver congested with ecchymoses in organ; kidneys, ecchymoses on surface. Cultures were made from different organs. Guinea pig No. 2, injected in same manner, presented same lesions.

Four rabbits were injected with pure cultures of Sanarelli bacillus icteroides; two with pure culture from ausopsy No. 46, one with culture from postmortem No. 11, one from postmortem No. 6, two from autopsy No. 1, one from autopsy No. 40, two from autopsy No. 37 and one with Sternberg's bacillus X.

The four rabbits injected with Sanarelli's bacillus presented the following appearances at the autopsy:

Rabbit No. 2, weighing 1740 grams, injected Nov. 5, 1897, at 11:37 A.M., with 1.23 c.c. icteroides bacillus, seventh day bouillon culture, in vein of ear, died during night of November 6, and being found dead in its cage at 7 A.M. Autopsy at 8:20 A.M.; the weight was 1575 grams, being a loss of 165 grams from time of injection twenty-three and one half hours. Postmortem rigidity marked; small amount of fluid in peritoneum, otherwise normal; liver congested and studded all over with yellowish spots; on section, foci of suppuration were found; spleen full, enlarged and congested; kidneys congested and yellowish; heart filled with blood, organ somewhat pale; lungs intensely congested; urinary bladder contained 2 c.c. of urine, albuminous, with casts and renal epithelium.

Rabbit No. 3, needle having slipped, was injected in subcutaneous tissue of ear, Nov. 5, 1897, with 1.23 c.c. of bacillus icteroides. It died during night of 10th. The same yellow spots appear in liver as were found in No. 2; spleen congested; kidneys appear smaller; heart and lungs apparently normal; urinary bladder greatly distended, contains 25 c.c. of urine; stomach contracted and contains no food, but a dark brownish fluid, walls apparently normal; had convulsions before death. Urine contains 20 per cent. moist albumin, hyalin and granular casts and renal epithelium.

Rabbit No. 8, weighing 1485 grams, injected Dec. 19, 1897, with 4.5 c.c. of a twenty four hours bacillus icteroides in bouillon, died Dec. 20, at 5 P.M. At autopsy, December 21, 9:30 A.M., weight 1470 grams; rigidity marked; conjunctiva injected; lungs, petechiæ on surface and congested; heart, petechiæ on surface and congested at base, filled with partly fluid blood; liver congested, some yellowish discoloration disseminated throughout organ; spleen congested and enlarged; kidneys congested, yellowish spots throughout organ; bladder contains 10 c.c. albuminous urine and gives reaction of bile; stomach, mucosa intensely congested, swollen, petechiæ in mucosa and eroded, especially marked around cardia; all tissues are intensely congested.

Rabbit Mo. 11, weighing 1827 grams, injected Jan. 1, 1898, at 11 A.M. with 5 c.c. bacillus icteroides bouillon culture sixteen hours old, died at 10:30 A.M. January 18; postmortem same day. Postmortem rigidity marked; subcutaneous connective tissues intensely congested; heart filled with black fluid blood; liver congested; spleen intensely congested and enlarged; kidneys congested; stomach is intensely congested and contains blackish brown fluid mixed with food. During life conjunctiva were intensely congested.

Rabbits No. 6 and 12 were injected with cultures from autopsy No. 46. No. 6, weighing 1780 grams, injected at 11:40 A.M., Dec. 19, 1897, with 3.5 c.c. of 24 hours bouillon culture, from postmortem No. 46, died between 8 and 9 A.M., December 20, weighing 1735 grams. Autopsy that A.M., showed rigidity marked; conjunctiva injected, can see through cornea streaks of injected vessels; gums, small red lines over incisors; lungs, petechiæ on surface; heart filled with fluid blood; liver congested, organ appears granular from the intensity of the congestion; gall bladder empty; spleen congested and enlarged; kidneys congested with petechiæ on surface, contains whitish yellow spots, stomach mucosa intensely congested and contains petechiæ and erosions filled with food; urinary bladder distended with 16 c.c. albuminous urine. Rabbit No. 12, injected with same culture presents same lesions Jan. 16, 1898.

Rabbit No. 1, which was injected with culture from autopsy No. 6, did not present any characteristic lesions, except the liver, which contained a large number of yellowish foci resembling tubercles undergoing cheesy degeneration; spleen normal in size.

Rabbit No. 4, injected with a culture from postmortem No. 11, presented nothing of mark, except the same lesions of the liver as were found in rabbit No. 1, and in both the urinary bladder was empty.

Rabbits Nos. 7 and 13 were injected with a culture obtained from postmortem No. 1.

Rabbit No. 7, weighing 1680 grams, was injected Dec. 19, 1897, at 12 M. with 4 c.c. of twenty-four hours bouillon culture from postmortem No. 1, died between 8 and 9 A.M. Dec. 20, 1897, weighing 1650 grams. At autopsy which was held the same morning, postmortem rigidity marked; conjunctiva congested; heart filled with partly fluid blood, congested at base; lungs congested, marked petechiæ, which are large; liver congested and many yellowish spots, capillaries congested; spleen congested and enlarged; kidneys are congested and appear swollen, some yellowish discoloration; stomach mucosa intensely congested, contain petechiæ, especially around cardia; duodenum, mucosa swollen and markedly congested; urinary bladder distended with 20 c.c. albuminous urine which gives bile reaction. Rabbit No. 13 gives same lessions.

Rabbit No. 14, weight 2151 grams, was injected Jan. 15, 1898, at 11:40 A.M. with 5 c.c. bouillon culture sixteen hours old, from postmortem No. 40, and died during the night of January 20, weighing 1930 grams. Postmortem January 21, at 12:30 P.M., showed pericardium very much congested; heart dilated and filled with fluid blood; spleen congested and enlarged, of dark color; liver congested, appears enlarged and contains yellow spots throughout, probably fatty degeneration; kidneys congested; lungs very much congested; stomach intensely congested.

Rabbit No. 10, weighing 1551 grams, was injected Dec. 27, 1897, with 3½ c.c. bouillon culture twenty-fours old from postmortem No. 37. For several days thereafter temperature ranged from 105 to 106 degrees; never had bile nor albumin in urine, which was obtained by catheterization; became cachectic and emaciated, and on January 8, could not stand up. January 9, it was chloroformed to death. The weight was 1300 grams; all organs appeared pale but did not present any marked

changes; stomach contained food and was normal; bladder extremely distended with urine, but could not measure quantity as it ruptured on opening animal.

Rabbit No. 5, weighing 1130 grams, was injected Nov. 5 1897, at 11:27 A.M., with 1.23 c.c. of a twenty-four hours bouillon culture of Sternberg bacillus X. Twenty-four hours after the animal was sick, refused to feed and remained quiet, and after forty-eight hours began to eat some, but was still quiet and did not care to move. Emaciated gradually and became unable to stand up November 21; died on the 25th. At autopsy animal was found very much emaciated; liver contained a few small yellowish spots disseminated through the organ, which was red; heart filled with clotted blood; lungs dark red; spleen normal; kidneys swollen; stomach contains food; gall bladder distended, urinary bladder contained 50 c.c. urine, which was not albuminous.

Rabbit No. 9, though injected, is still alive and has a small abscess of ear. Was injected with culture from autopsy No. 37.

From the foregoing it will be seen that the cultures obtained from autopsies Nos. 1, 40 and 46 give the same lesions as that of the bacillus icteroides of Sanarelli, and these three cultures also give the same bacteriologic reaction when submitted to the different tests characteristic of the bacillus icteroides.

Besides these rabbits two dogs have been inoculated.

Dog No. 1, unfortunately, died of chloroform narcosis while he was being injected, but is interesting on account of the rapidity with which the bacilli were disseminated through the organs. He had been injected in a vein of the hind leg, and five minutes hardly elapsed between the time of injection and the time that the organs were reached, during the autopsy, yet all the organs gave pure cultures of bacillus icteroides and the blood from left heart was found swarming with bacilli.

Dog No. 2 was also injected Jan. 11, 1898, with 5 c.c. of a 72 hours bouillon culture of bacillus icteroides, partly in the circulation and partly subcutaneously, as the animal moved and the needle slipped out of the vein. During the first twenty-four hours it was sick and nauseated; temperature reached 105 degrees, but it gradually recovered, and on January 16 was re-injected subcutaneously with 10 c.c. lactose bouillon culture bacillus icteroides. It became sick as at first, but to a less extent. After three or four days it had sufficiently recovered to break loose from its place of confinement and was allowed to escape.

With the exception of two, the cultures made from living blood obtained from ten patients remained sterile. The blood was obtained from the veins of the patient through a sterilized glass syringe. One or two c.c. were drawn and immediately inoculated from the syringe into culture tubes. One specimen was obtained from a patient that was bled and several tubes inoculated. Of these two cultures obtained from the blood we have not yet obtained any definite results.

From the foregoing we may conclude:

1, that albuminuria and presence of bile in the urine is a constant symptom in yellow fever, appearing about the fourth day in mild and earlier in severe cases; 2, that the presence of the malarial hematozoon does not preclude the possibility of yellow fever; 3, that in solutions one to ten the yellow fever blood does not give any reaction with pure cultures of the typhous bacillus; 4, that if we except the diminution of hemoglobin, the blood does not show any marked changes; 5, that the most characteristic pathologic changes in the organs are the marked steatosis and congestion of liver, kidney and heart, the marked congestions, erosions and hemorrhages of the stomach and intestines and, usually, absence of lesions in the spleen and lungs. The other tissues present a marked icterus and congestion; 6, that the bacillus which we isolated and with which we have experimented is identical with that reported by Sanarelli as the bacillus icteroides, and the results obtained would justify us in considering it the special cause of yellow fever.

NEUROTIC ECZEMA.

Presented to the Section on Cutaneous Medicine and Surgery at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1–4, 1897.

BY L. DUNCAN BULKLEY, A.M., M.D.

PHYSICIAN TO THE NEW YORK SKIN AND CANCER HOSPITAL; CONSULTING PHYSICIAN, NEW YORK HOSPITAL, ETC.

NEW YORK, N. Y.

The recognition and management of eczema must ever be an interesting and profitable study to the physician, because practically it forms a very large share of the cases of skin disease coming under his care. Even in dermatologic practice, where the rarer diseases and also the minor ailments of the skin contribute to make a considerable proportion of the whole number, it constitutes nearly one-third of all cases. In a recent analysis of 10,000 miscellaneous skin cases in the writer's private practice, there were 3201 patients with eczema, they forming 32.01 per cent. of the whole number. In ordinary private general practice, where many infantile cases occur, this disease undoubtedly forms over one-half of all the cutaneous diseases coming for treatment.

Neurotic eczema is particularly interesting to the general physician, because if recognized and rightly treated not only are the results commonly very satisfactory, but the patient also receives much improvement in general health by the measures calculated to benefit the eczema. Neurotic eczema should always be recognized as the signal flag of danger and should never be passed over with attempts to gain relief from local treatment alone, which can only be of minor and temporary benefit.

The influence of the nervous system in the production of skin lesions of various kinds has long been recognized and is now abundantly established, both by pathologic and clinical proof. Its influence in producing and prolonging eczema was very fully elaborated by the present writer[1] some time ago, and reference will here be made to some of the evidence then collected, as well as to more recent clinical experience.

Neurotic eczema is seen in both sexes and in all ages, from the cradle to the grave, although it is much more common in certain periods of life than in others. In infancy it is frequently observed in connection with cutting of the teeth, fresh eruptions occurring as each new tooth presses on the swollen and tender gum. In childhood it is less common, but may appear with each occurrence of nerve-strain, whether from overwork in school or over-excitement in recreation. The same is true in youth, where the changes of puberty come in as a factor, especially in females. But its most frequent time of occurrence is during that active period of existence between 20 and 55 years of age, when the strain and burden of life falls heavily on so many and when the strongest constitutions too often show many evidences of breakdown, both in the nervous system and in other directions.

Something can be learned of this from the following tables. The first relates to nearly 6000 cases of eczema, occurring among 20,000 miscellaneous skin cases in my public and private practice. The second table is constructed to show the percentage of eczema patients at different periods of life, as compared with the number of individuals alive at the same age, as shown by the life tables of insurance companies.

[1] "On the Relation of Eczema to Disturbances of the Nervous System." —Medical News, Philadelphia, Jan. 31 and Feb. 7, 1891.

TABLE 1.—Ages of eczema patients.

	Males.			Females.			Totals.
	Private	Public.	Total.	Private	Public.	Total.	
Under 1 year	107	110	217	61	82	143	360
1 to 2 years	37	52	89	38	37	75	164
2 to 3 years	33	48	81	25	37	62	143
3 to 4 years	22	35	57	16	39	55	112
4 to 5 years	14	33	47	22	17	39	86
Infantile	213	278	491	162	212	374	865
5 to 10 years	48	67	115	58	88	146	261
10 to 15 years	41	43	84	63	66	129	213
15 to 20 years	51	59	110	110	92	202	312
20 to 25 years	99	111	210	148	134	282	492
25 to 30 years	136	112	248	131	99	230	478
30 to 35 years	187	103	290	113	72	185	475
35 to 40 years	196	93	289	109	104	213	502
40 to 45 years	187	68	255	105	99	204	459
45 to 50 years	158	73	231	88	110	198	429
50 to 55 years	169	85	254	88	109	197	451
55 to 60 years	107	52	159	49	62	111	270
60 to 65 years	99	41	140	51	50	101	241
65 to 70 years	62	30	92	35	23	58	150
70 to 75 years	52	31	83	23	15	38	121
75 to 80 years	25	8	33	10	6	16	49
80 to 85 years	7	2	9	5	2	7	16
85 to 90 years	3	0	3	2	0	2	5
90 to 95 years	2	0	2	0	0	0	2
95 to 100 years	0	0	0	0	1	1	1
Unknown age	6	1	7	3	10	13	20
Totals	1,848	1,257	3,105	1,353	1,354	2,707	5,812

TABLE 2.—Comparison of percentage of eczema patients at different ages, with the percentage of individuals alive at those ages as shown by the census.

Ages.	Per cent. living, at all ages.	Per cent. of eczema patients.	Relation between the two.
Under 1 year	2.2	6.1	+3.9
1 to 2 years	2.0	2.8	+0.8
2 to 3 years	1.9	2.4	+0.5
3 to 4 years	1.8	1.9	+0.1
4 to 5 years	1.8	1.4	−0.4
Infantile	9.7	14.8	+5.1
5 to 10 years	8.7	4.4	−4.3
10 to 15 years	8.4	3.6	−4.8
15 to 20 years	8.2	5.3	−2.9
20 to 25 years	7.9	8.4	+0.5
25 to 30 years	7.5	8.2	+0.7
30 to 35 years	7.2	8.1	+0.9
35 to 40 years	6.7	8.6	+1.9
40 to 45 years	6.3	7.8	+1.5
45 to 50 years	5.9	7.3	+1.4
50 to 55 years	5.4	7.7	+2.3
55 to 60 years	4.8	4.6	−0.2
60 to 65 years	4.1	4.1	. . .
65 to 70 years	3.3	2.5	−0.8
70 to 75 years	2.4	2.0	−0.4
75 to 80 years	1.5	0.8	−0.7
80 to 85 years	0.7	0.2	−0.5
85 to 90 years	0.2	0.08	−0.12
90 years and over	0.07	0.05	−0.02

Examining these tables it is interesting to note the sudden increase in the frequency of eczema during the period from 20 to 25 years of age, and the continuance of the large number through those of 50 and 55 years in spite of the diminishing numbers alive at the advanced age. By the second table it will be learned that the greatest actual percentage of cases of eczema, in comparison with the individuals living, after the first year of life, was in the period between 50 and 55, where it was represented by + 2.3, while between 60 and 65 years the percentage was exactly equal; in the period between 10 and 15 years the disease is relatively the least frequent, the difference being represented by −4.8.

It is also interesting to note the large increase in the number of cases in females, in private practice, between 20 and 25, where they form nearly 11 per cent. of all the females, whereas the males at this same period form only a little over 5 per cent. of the class. During the two decades, between 20 and 40 years of age, when the strain of life is the greatest, there were no less than 1947 cases of eczema, or almost exactly one-third of the entire number; this is the more remarkable considering the very large number seen in the first years of life, and the diminished proportion of persons living during the later period, as shown in Table 2.

Various forms or phases of nerve disturbance are seen in connection with neurotic eczema, and they may be considered under the following heads: 1, neurasthenia, or nerve exhaustion; 2, nervous and mental shock; 3, reflex phenomena; *a*, of internal origin; *b*, peripheral; 4, neuroses; *a*, structural; *b*, functional.

1. *Neurasthenia or nerve exhaustion.*—First in importance, both from its frequency and its seriousness is nerve strain, which is a fertile cause of neurotic eczema. In many cases the direct connection may not always be immediately traceable, but watching the same patient for a length of time it will be found that with each period of nerve exhaustion, from varied causes, the eczema crops out. I can not do better than to quote a few illustrative cases which I reported in the article previously alluded to.

An unmarried lady, aged 53 years, was the executive officer of a charitable institution, and her duties were arduous and exacting. On Tuesday of each week she was particularly tried on account of the weekly meeting and inspection of a board of lady visitors, and that night was often sleepless. Her eczema of the face and hands was always aggravated on the succeeding morning; indeed, the eruption, which would often yield very satisfactorily to treatment during the week would burst out afresh on the Wednesday morning succeeding the visit. This had been the case for some months before I saw her and was verified by myself again and again.

A prominent clergyman, aged 52 years, had for many years an eczema of the head and face, which was always greatly aggravated on Monday after the Sabbath's mental work and strain. This I observed on a number of occasions, the eruption greatly improving each week until Monday, when he would present himself with an aggravation of the eruption. The same occurred sometimes during the week, whenever extra work, as a public address, was called for, and has been repeatedly observed in other patients since.

In another case, that of a lady, aged 22, any nervous excitement, or household disturbance and hysteric crying, would be followed by a fresh outbreak of eczema on the hands.

Since these cases were reported I have seen a number almost as striking, and have frequently observed business and legal worry followed shortly by eczema. Mentioning the matter to an exceedingly intelligent gentleman, aged 47 years, whom I have attended in attacks of eczema for ten or more years, he remarked on the truth of the observation, and said, "you may quote me as a striking illustration of the effect of nervous strain in producing eczema again and again."

While writing this article, a gentleman aged 60, who has had eczema occasionally for fifteen or more years, also corroborated this statement very strongly.

Prolonged and severe household strain will produce the eruption repeatedly, in women, and continued loss of sleep, often only from sickness in others, will now and again be followed by eczema. My notes show numerous cases where the nervous exhaustion following the grip caused the eruption to appear.

2. *Nervous and mental shock.*—The effect of nervous shock and violent emotions, such as grief, anger, etc., in the production of eczema has long been recognized by writers on dermatology, and the well authen-

ticated instances of this on record are so numerous that it can not be questioned that this form of nervous disturbance often operates either to produce the disease or to excite an attack in one susceptible to the same. A single very striking illustration may be cited from Leloir,[2] a most careful authority.

"A young woman who never had any eruption previously, except a pustular disease of the scalp, at 2 years of age, but who was very nervous and impressionable, and who was in perfect health, suffered a mental shock as follows: Approaching her home she saw her little child leaning out of the window, and on the point of falling; she cried out, and the child being startled let go her hold and fell, strangely enough, directly into the mother's arms, so that it received no harm. But the mother lost consciousness, and was completely broken down by the shock, and within three days developed a sharp attack of eczema, beginning on the upper extremities and invading much of the surface. Some time afterward she had a second and a third attack, each time following mental disturbance."

The same writer records several similar cases and Tommasoli[3] reports the occurrence of eczema after long grief and sudden shock.

Mental and moral shock occurring in many different manners have been observed to be followed quickly by attacks of eczema. Thus Radouan[4] reports that cases occurred in immediate consequence of the siege and commune of Paris, in 1871, and I saw more than one case ascribable to the financial panic in Wall Street, known as "Black Friday" several years ago.

3. *Reflex phenomena, (a) of internal origin, (b) peripheral.*—The influence of reflex irritation in the production of disease has long been an established fact, although opinions have varied in regard to details and individual cases. [redacted]

Many writers have related cases illustrative of the production of eczema by this means, and in certain directions it is of not very infrequent occurrence. This reflex irritation may come from within, from some other organ, or part of the system, or it may result from external irritation of the skin; in either case the eruption excited may cease with the removal of the cause, or may persist indefinitely.

(*a*) *Reflex eczema of internal origin.*—The most common illustration of this is the eczema observed in teething infants, where each accession of a tooth will cause a fresh outbreak of eruption on the cheeks, forehead, chin, or elsewhere. Another rather frequent form of reflex eczema is seen in that accompanying eye troubles. Many have reported cases of the eruption, which were cured by wearing proper glasses. I saw a very striking instance in a lady aged about 50 years, in whom attempts to use the eyes has repeatedly precipitated attacks of eczema of the lids and chin, also on the forehead. Intestinal irritation has been observed to produce attacks of eczema, and also tapeworm and the oxyuris. Menstruation is likewise a frequent exciting cause as observed by Danlos[5] and others, and as I have repeatedly witnessed.

(*b*) *Reflex eczema of peripheral origin*—This form of disturbance is more difficult to make out, but a number of observations are on record where severe cutaneous irritation, as burns, etc., were followed by eczema. Scratching is a fertile cause of eczematous eruption in those predisposed thereto. Not only does this result from the direct scratching of an affected part, but the irritation of a certain part by scratching or otherwise can excite a reflex irritation in a distant part, which may be followed by eczema in that locality.

4. *Eczema dependent upon neuroses, (a) structural, (b) functional.*—Eczema has been observed to follow structural nerve changes, as after injury, amputations, etc., and also in connection with functional neuroses, as neuralgia. It is not necessary to develop this part of the subject greatly, but I will mention one case where the connection of eczema and neuralgia was very marked.

Mrs. B., a widow, aged 30 years, was thrown on her own resources for the support of her mother and herself. She took to literary pursuits, and became the editor of a magazine requiring a large amount of personal work, she using the pen almost constantly. After some months she began to suffer from neuralgia of the right arm, and at the same time a papular eczema developed on the back of the arm and radial side of the forearm, attended with the most intense itching. When she ceased for a time from her great use of the hand the neuralgic pain lessened and the eczema diminished, but a return to her severe mental application would cause a return of both. This continued for some time, and treatment for either condition seemed to have very little effect while the arduous labors were persisted in, but both yielded when work was relaxed or suspended.

We have now reviewed some of the principal relationships of eczema with nerve disturbance, but the subject is a very much larger one than would appear from what has been said. The literature of it has already reached very large proportions and has hardly been alluded to. But enough has been said to show clearly the importance of the subject. We will now consider some of its more practical aspects.

Neurotic eczema does not differ very greatly from other forms of the eruption, but a trained eye can generally suspect the true character of the case.

The eruption is apt to come first upon the hands and face, less commonly on the feet. But from its starting point it may extend over large surfaces, and after scratching, or irritation by treatment, may present quite the features of gouty eczema.

Neurotic eczema on the hands is very apt to exhibit vesicles, but on the adult face the eruption is quite as likely to assume and maintain the erythematous form, without vesicles, and often without moisture, unless scratched. The groups of lesions of neurotic eczema have a tendency to be pretty sharply defined, in more or less herpetic patches which may present mainly solid papules, or, when torn, a raw surface. The areas affected early in the eruption are not apt to be very large, but the eruption is composed of a number of patches of aggregated lesions.

Neurotic eczema is intensly itchy, and the patient will often scratch where there are no apparent lesions, and so develop the eruption in one place and another. The scratching indulged in is commonly of the most severe kind, it seeming almost impossible to reach the seat of the trouble until the deepest portions of the epidermis are reached. The spasms of itching are sometimes fearful and utterly uncontrollable. I remember the case of an elderly lady whose two

[2] Leloir: Des dermatoses par choc moral. Ann. de derm. et de syph., 1887, p. 367.
[3] Tommasoli: Monatsh. für pract. Dermatologie, 1886, p. 432.
[4] Radouan: Etude théor. et pract. sur l'Eczema. Thèse de Paris, 1875, p. 41
[5] Danlos: Etude sur la Menstruation, etc., Paris, 1874.

daughters were not able, when the spasms seized her, though they used much force, to prevent her tearing her face and neck till the blood literally ran down, which I witnessed at my first visit.

Treatment of neurotic eczema.—This will often tax the patience and skill of the physician to the utmost, and the broadest principles of medical knowledge and judgment will often need to be put in operation and maintained, if the patient is to have great and permanent benefit. The treatment includes both constitutional and local measures; the former are essential, the latter are helpful.

Constitutional treatment.—Naturally every case requires to be studied and treated on its own merits; no two cases could be treated alike from beginning to end.

There is some danger of error, in approaching a case of neurotic eczema, in supposing that because of its nerve element it will require at once, and mainly, drugs which are known to have an influence on the nervous system. At times the treatment may be that of ordinary gouty eczema, for neurotic symptoms are exceedingly common in gouty subjects, and often largely dependent upon an existing gouty state, and unless that element is reached and rectified the progress will be poor. The strictest attention should be paid to the digestive system, the action of the bowels and kidneys, and above all to the diet; and this should be done, not only at the first visit, but on each subsequent consultation, and proper remedies and measures continually given.

But in all the treatment there is to be a continual regarding of the nervous system, and use of remedies and measures calculated to strengthen that. Arsenic undoubtedly finds an important place in the treatment of neurotic eczema, but should never be relied on alone, and I seldom administer it in the form of drops, the Fowler's solution so universally given by the profession for every case. Iron, nux vomica or strychnin, quinin, the phosphates, ergot, oils, and many other remedies may come into play in the management of the disease. In occasional cases much benefit will be obtained from digitalis in strengthening and regulating the capillary system, and so improving nerve and cellular nutrition, while other cases will require the sedative action of aconite in proper and free doses.

A few words may be added in regard to the attempt to give relief to the itching and securing sleep in neurotic eczema, by the administration of internal remedies, hypnotics. While the eruption is in an aggravated condition, it often seems almost impossible to effect much by this means. Opium and its preparations only aggravate the itching, and if sleep is secured it is of an entirely unrefreshing character. Codeia seems to be the least injurious of them all. Sulphonal and trional in large doses will sometimes be effective, but are often followed by further nervous exhaustion, in the end aggravating the complaint. Phenacetin in full doses, repeated in an hour or so, will sometimes prove most effective, and antifebrin, with hot water and a trifle of whisky, will often secure very refreshing sleep; in milder cases urethan in one gram doses is effective. Tincture of gelsemium, given in repeated and increasing doses, even every half hour, has in some instances proved most serviceable in my hands, as also cannabis indica. The bromids have relatively little effect, although when combined with a very small dose of morphia and aconite, have at times proved very valuable. A large warm drink at bedtime will often aid these remedies and may be valuable alone.

The diet must always be carefully directed. Not only should ordinary rules be given as to the avoidance of unnecessary and injurious articles of food and pleasure, which by deranging the digestive system, can greatly hinder the progress of the case, but the diet should be so arranged that it shall furnish the best possible nerve nutriment, and in a form easily assimilable. For this purpose I always order an increase in the digestible fatty matter and phosphates. Some caution may be required in regard to the former, but with a little care the amount of the fat of meats and oils, and also fresh butter, can be added to the dietary. Articles commonly called greasy, or where the fat is combined with starchy matter, as in pastry and fried articles, are to be avoided, but well browned bacon is often a very valuable addition to the meal. The phosphates are found abundantly in the preparations of whole wheat, such as crushed wheat, wheatena, wheatlets, wheat germs, Pettijohn's breakfast food, etc., as also in bread made from the whole wheat flour, some of which should be taken if possible three times daily. Fresh fish (not fried) is also serviceable.

But the one article which contains the elements necessary to nourish the nervous system and proves of the most signal advantage is milk, if properly taken. This should not be used at all with meals, nor after or in connection with the least particle of food, otherwise it undergoes caseation and may embarrass the liver, which is too often at fault in these cases. My plan is to have the milk taken warm, pure and alone, one hour before each meal, and also at bedtime, if sufficient time has elapsed for the stomach to be perfectly empty, which is at least four hours after a hearty meal. When the digestion is sluggish, and the milk meets the late products of digestion, it is curdled and then its digestion requires some considerable time and we do not get the benefits desired. But if it can be taken on an absolutely empty stomach, when the alkaline tide has already set in, it is then absorbed almost immediately and affords a refreshment to the whole system, including the nerve elements, which can hardly be obtained in any other way, and which must be observed to be thoroughly appreciated. It is understood that this precludes the possibility of adding liquor or an egg to the milk, and especially should there never be a cracker or anything else eaten with or near it. When taken in the manner described not only does it not diminish the appetite, but increases it; whereas if by any chance the milk has become caseated in the stomach, the necessary digestion may, and generally does, impair the appetite, as well as disturb the liver action. This plan I have followed for many years, in hundreds of cases, and I am very positive of the vast benefit resulting, when it is strictly carried out.

Local treatment.—The indications for local treatment differ so materially in different cases that it would be impossible within the limits of this paper to afford even the briefest outline of all that might be required; a few practical hints, however, may be given.

First, there is danger of doing too much in the attempt to get relief from the itching, which can seldom be obtained by local measures alone. The plan of treatment should be a soothing and protective one, and the mildest applications should be made first. Zinc ointment with 1 or 2 per cent. of carbolic acid or

creosote, or with 5 to 10 per cent. of ichthyol, or tincture of camphor, is always a safe and generally beneficial dressing if well and thoroughly applied. But to be of service it should be kept thickly applied, spread on a lint in most places, and bound on firmly. In the acutely inflamed and especially in the erythematous forms of the eruption, there is nothing better than the well known calamine and zinc lotion, freely sopped on many times in the day. Ichthyol in watery solution, 10 to 20 per cent., freely bathed on the part, often gives great relief, or if the skin is too dry it may be used in oil in the same strength.

On more chronic patches the permanganate of potassium, 2 per cent. solution in water, painted over the part will sometimes arrest the itching very well; it may either be used alone, or the calamine and zinc lotion may be sopped on after the surface has dried, or an ointment may be applied if the skin is at all hard.

In the erythematous eczema of the face a tannin ointment, 1.95 to 3.9 grams, to the 31.2 grams, with 2 per cent. of carbolic acid is effective; a mixture of camphor, 1.95 grams to 31.2 grams of zinc ointment also forms a good antipruritic. In still more chronic states the tar and zinc ointment, as recommended by the present writer many years ago, when thickly spread on lint and bound on, will often also serve admirably to control the itching.

The use of very hot water for a brief application, followed by an appropriate ointment, should never be forgotten. In old cases of eczema of the scrotum the effect of this treatment is sometimes very remarkable. Menthol will often prove a valuable addition to ointments, in the strength of 2 to 4 per cent., with about half as much carbolic acid, which latter serves both to heighten the antipruritic effect and also to overcome some of the chilly sensation caused by the menthol.

In bringing this brief and rather imperfect study of neurotic eczema to a close, I wish to again emphasize what was intimated early in my remarks; namely, that I do not regard eczema as a local condition or disease of the skin, but that it has constitutional and general relations which should always be considered and studied. The neurotic relations of eczema are especially interesting and important because of the excellent results which follow a careful and correct appreciation, interpretation and treatment of them; whereas, a neglect of this aspect of these cases will lead not only to their chronicity and rebelliousness, but also to an injury to the patient and further nerve exhaustion, whose ultimate result may be most deplorable.

4 East 37th St.

DISCUSSION.

Dr. SCHAMBERG—I will narrate briefly the history of a case of neurotic eczema. A young woman suffered great mental strain nursing her husband through a protracted illness. His death was a shock which prostrated her entirely. She thereafter suffered from a profound neurasthenia which lasted for a considerable period of time. She subsequently became restored to health by taking a rest cure. This woman consulted me for a recurring papular eczema of the hands and forearms. A peculiarity of this case was the extremely rapid evolution of the lesions. During an attack of mental excitement the papules would spring up almost under the eye of the observer. They were closely aggregated in patches and were intensely itchy. They disappeared in as short a time as they appeared. A noteworthy fact in this case is that a hysterical daughter was also the victim of eczema. There would thus seem to be an apparent tendency to heredity in this case.

Dr. FLEISCHNER—I saw a case of a young man of phlegmatic temperament, all depressing nervous elements entering into the disease of no apparent import. No treatment constitutional or local had any effect. It was found out indirectly that he was engaged to be married, and on being advised to ignore his disease altogether and fix a date for the wedding, his eczema abated without further treatment from the day of this advice being given. It is held that whenever the cause can be removed that alone will overcome the disease and unless that is done no amount of local or constitutional treatment will be of any but the most meager effect.

Dr. RAVOGLI—I had an experience with one patient who, whenever he smoked a cigar had an attack of eczema scroti.

Dr. BULKLEY—Tobacco will sometimes occasion attacks of eczema and I have repeatedly known it to be the cause of a relapse.

MYCOSIS FUNGOIDES; WITH REFERENCE TO A CASE.

Presented in the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

BY JOHN V. SHOEMAKER, M.D., LL.D.

PHILADELPHIA, PA.

A married woman, 60 years of age, who, upward of a year ago, was for some time under my care, gave the following history: The disease from which she suffered began four years and three months prior to her first visit. The first manifestation occurred in the form of red patches situated upon the back. They were accompanied by intense itching. They were rather bright in color. From the back the lesions gradually spread to the breast, abdomen, neck and limbs, attacking even the soles of the feet. Some, after a certain degree of development, healed. According to her statement, the skin had been more seriously affected than it was at the date of the examination. Itching had throughout been a prominent symptom. The lesions were also the seat of considerable pain. They often bleed when rubbed or scratched.

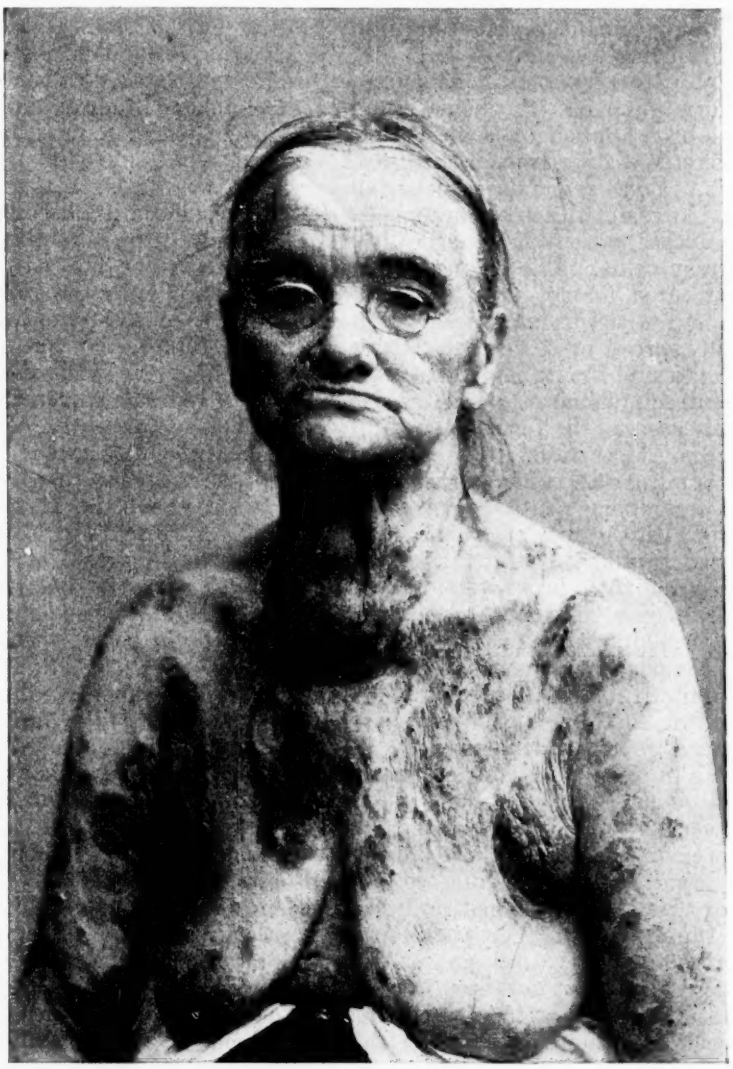
The patient's appetite was poor, she was habitually constipated, and had lost flesh. She suffered also from insomnia. No case of inveterate skin disease had ever occurred in any member of her family. The patient is ignorant of any cause of this disease. When examined, Dec. 20, 1895, the greater part of the woman's body was found to be covered with patches and tumors of various sizes and stages of development. The face was comparatively free. A red, infiltrated patch was present upon the right upper eyelid. The thyroid gland was decidedly enlarged, more particularly upon the right side. The goiter had existed for many years before the appearance of the skin disease. Upon the skin covering the gland were several fungous excrescences. Numerous similar outgrowths were situated upon both sides of the neck. The upper part of the chest, the mammary glands, abdomen, and axillæ were extensively diseased. It is scarcely possible to describe the lesions in detail for the reason that their numbers, size and proximity left but little of the surface unaffected. The lesions consisted of patches and tumors. The former were of various sizes and shapes, of rather a bright red color, and more or less elevated. The latter were prominent outgrowths, some bright and others rather dark red, excoriated and often bleeding. They were broad at the base. A growth about four inches in average diameter, the base of which was rather oval than circular in outline, was seated upon the upper part of the left breast immediately in front of the axilla. Upon the right breast, in a nearly corresponding situation, was a long, oval, slightly elevated, bleeding patch. The anterior and posterior surfaces of the arms and forearms were studded with patches. Upon the back the lesions, though abundant, were not as

numerous as upon the front of the body. Behind the right axilla there was a large fungous tumor. Upon the right side a similar large mass was observed. The largest tumors were found in the groins. They were of the same character as those already described, raw, bright red, fungous and bleeding at the slightest pressure. Upon the buttocks, thighs, calves, legs and feet elevated patches and excrescences were abundant. On account of the excessive itching the surface of the lesions were constantly torn, irritated and bleeding.

The patient lived at a distance, but visited me at stated intervals for perhaps eight months. During this period the disease seemed at times to improve, but relapse invariably followed. The general health slowly declined and the patient succumbed in the summer of 1896, during my absence from home.

The report of a microscopic examination of pieces taken during life from the tumors, reads as follows: "Scrapings of the surface showed single epithelial cells of the squamous variety, together with some column-like cells with indistinct concentric rings or layers. Section revealed that the tumor was made up for the most part of epithelial cells with a vascular connective tissue, stroma or framework supporting the epithelial elements, each extending through the entire depth of the section of the specimen, dividing in some portions into epithelial columns with occasionally small interspaces. At and near the surface the epithelial cells are large and somewhat decreasing in size from surface or margin as we descend into the body of the tumor, forming irregular cell columns and collections or nest-like arrangements."

The foregoing account certainly depicts an unusual condition of the skin. The existence for several years of prominent lesions of so extensive and well nigh universal distribution, with such slow decline of the general health, is not in consonance with our experience of malignant disease or severe infectious processes. The microscopic examination was suggestive neither of syphilis nor tuberculosis. The abundance and arrangement of epithelial cells and the presence of a fibrous stroma points rather to carcinoma, but we can not admit the possibility of so many cancerous tumors existing for several years upon the surface without causing visceral involvement and cachexia. If, therefore, we are unable to place implicit dependence upon the revelations of the microscope, it only remains for us, relying upon the clinical manifestations and natural history of the case, to pass in review



Mycosis Fungoides (from Nature).

those diseases capable of producing large and numerous fungous growths.

1. *Syphilis.*—The lesions undoubtedly bore no resemblance to the ordinary manifestations of syphilis. Nevertheless, the latter disease does sometimes give rise to fungous growths. Moist papules or mucous patches may sprout luxuriantly, but they do not cover the entire surface. The ulcerated tubercular syphilide may also assume the appearance of a vegetating growth, but this transformation is limited in locality and not so widely generalized as in the case which I have described. Furthermore, there was neither a history nor preceding evidence of syphilis. In doubtful cases we are accustomed to rely with some confidence upon the touch-stone of treatment. In this case anti-syphilitic treatment revealed nothing; it caused not the slightest improvement.

2. *Frambesia.*—Syphilitic excrescences sometimes assume a berry-like form to which the name "frambesioid" syphilide has been applied by some writers. The disease, whose lesion is distinctively likened to a raspberry, is frambesia, or yaws, endemic in certain tropical countries, and occasionally seen in our extreme southern States. My patient had never lived farther south than Pennsylvania. The lesions of yaws are not so widely distributed, do not itch, frequently cause deep ulceration and unsightly cicatrices, is contagious, and is generally spread by sexual intercourse.

3. *Tuberculosis.*—Like syphilis, tuberculosis is the cause of obscure and intractable cutaneous affections. These, however, usually assume the forms of an infiltration tumor, followed by ulceration. If we accept lupus as the type of a mitigated tuberculosis of the skin, we can trace no resemblance either in the history or course of lupus with the case of which I now speak. It is true that papillary outgrowths sometimes occur in connection with lupous lesions, but these proliferations in themselves point to no individual disease. They develop whenever there is morbid hypernutrition of the papillary layer of the integument. There is a form of tuberculosis accompanied by warty growths, known as tuberculosis verrucosa, but it is exceedingly rare, generally attacks the backs of the hands and occurs in those whose duties require them to handle cattle.

4. *Pemphigus.*—A variety termed pemphigus vegetans exhibits papillary excrescences, but these develop upon the basis of bullæ and this form of disease likewise is extremely rare. Here we have had no bullæ.

5. *Sarcoma.*—The tumors of this case certainly bore a considerable resemblance to sarcoma. As a rule, sarcoma advances rapidly, does not cause itching, and seldom manifests any tendency to spontaneous cure. There is, however, a generalized form of this disease, usually developing at or after middle age, beginning as hard edema, upon which nodules subsequently arise and grow slowly; these ultimately become tumors, which are at first hard and smooth but ultimately may ulcerate and assume a fungous aspect. These lesions may progress or retrocede and some may undergo spontaneous cure. The disease may finally involve mucous membranes and cause death. In other cases generalized sarcoma may begin with a solitary growth at some point, the single lesion being followed by other tumors. In this variety of disease the skin prior to ulceration is generally of a livid, brownish or brownish-red color. The tumors of the skin may also coexist with lesions of internal organs or lymphatic glands.

6. *Mycosis fungoides.*—There remains, finally, another rare affection, characterized by fungous tumors and corresponding more closely in lesions and symptoms to the present case than any of those hitherto mentioned. This is the disease known as mycosis fungoides. A synonymous title by which it has been designated, viz., multiple sarcomata, significantly points to the resemblances between the two maladies. Nevertheless, certain clinical distinctions are definitely marked. Mycosis fungoides does not always involve the lymphatic glands, and it never attacks internal organs. It pursues a tardy course, may last for many years and death is at last due to exhaustion, complication or intercurrent disease. Individual patches or tumors may subside without leaving any trace.

Mycosis fungoides usually begins during or after middle age. In a number of cases it has been preceded by some other cutaneous affection, as erythema, erysipelas, eczema, urticaria or furunculosis. The first phase of its development is by no means significant of its nature. Recurrent attacks of erythema, eczema or dermatitis occur for a long time; it may be for years. In the beginning these attacks are amenable to treatment, but with the lapse of time they become more and more intractable. Throughout the course of the disease itching is a prominent characteristic. In accordance with its clinical history mycosis fungoides has been divided into three periods or stages, the eczematiform, the lichenoid and the neoplastic. They all pursue a very tedious course. The patches of seeming eczema are of a dark or light red color. As the case progresses they become more or less raised above the surrounding surface and there may be a little scaling. In the commencement only the superficial layers of the skin are affected, but the deeper parts are at length involved. The affected surface gradually grows rougher and assumes an aspect which bears some resemblance to lichen planus.

Finally, the most distinctive stage, that of tumor formation, arrives. One or more of the lichenoid patches takes on increased development, and bulges forth as a veritable tumor of irregular or hemispheric form, somewhat firm consistence, bright red color and, as a rule, smooth surface. At this stage the tumors were compared by Alibert, who first described the disease, to ripe tomatoes. Subsequently the surface becomes excoriated or ulcerated, rough and fungous. Even at this advanced stage of development fungous tumors may be absorbed and disappear, leaving no trace.

The division into stages is a broad and general one; the scheme of development is marked by many deviations. Lichenoid patches may, as in my case, coexist with numerous and large tumors; the three phases of the disease may be present upon the surface at the same time; the tumors may originate without any preceding manifestation. In a case reported, sheet-like infiltration was observed upon the base of the tongue, palate and in the larynx.

The duration of each stage is indefinite and the entire course of the disease is notably slow. It continues for several or many years. Sooner or later the patient begins to fail in general health. Death at length occurs either from gradual exhaustion, uncontrollable diarrhea or some other complication.

The actual cause of mycosis fungoides is still unknown. It is generally supposed to be of parasitic

origin, but no constant organism has yet been demonstrated.

The treatment has not been very satisfactory. Arsenic, mercury, iodids and other remedies have been employed with variable degrees of success. At the present time we are only able to mitigate the symptoms or lesions of the disease without, probably, exerting much influence upon its course. External applications should be of a sedative and anti-pruritic character.

DISCUSSION.

Dr. DUHRING—Nine cases out or ten are fatal. The diagnosis of the early stage is often very difficult even to an expert. The disease is more common than is generally supposed. The early lesions simulate other diseases very closely, and particularly the erythematous form of eczema. I recall one case which was treated for eczema and within two years the patient died. So it is of great importance to be able to diagnose a case before the fungoid condition makes its appearance, after which it is fatal. I remember a case which was almost clinically like Dr. Shoemaker's, with the exception of the face lesions. The patient was treated with thyroid extract for three or four weeks and the lesions had largely disappeared. The family physician said that the patient had been able to follow his occupation (carpenter) up to two months ago and the main tumors had almost all disappeared. Then the patient suddenly became worse, the tumors increased in size, especially on the neck, axilla and chest, and within one month he sank very rapidly. There was extreme languor and the patient would not leave the bed, after which death occurred in two or three days. There is no hesitation in classing this affection as a distinct disease. I have seen two cases of sarcoma which were generalized and there was no suspicion of their being mycosis fungoides. Both cases died within three months.

Dr. GOTTHEIL—I had a very similar case and all forms of treatment were useless. The pruritus was so obstinate that the patient almost became insane. There were pinkish elevated plaques which itched very much and spread all over the body. The characteristic tumors appeared later. Numbers of previous cases had been diagnosed as eczema, psoriasis, tumors, etc. Every case of an intractable itching cutaneous disease should be suspected as a mycosis fungoides.

Dr. ALLEN—More attention ought to be paid to the premycotic stage. Sometimes the earlier leaions would be like a papular leprosy.

Dr. GILCHRIST—Coley's fluid, which is used in inoperable sarcomata, was tried on a case of mycosis fungoides, fungoid stage (a colored woman), in the Johns Hopkins Hospital, but although some temporary reduction in the size of the tumors had followed, yet no permanent good effects had resulted. I have examined a number of sections taken from three cases of mycosis fungoides and would not diagnose them as sarcomata as some observers have done.

ULERYTHEMA SYCOSIFORME (LUPOID SYCOSIS) WITH REPORT OF TWO CASES.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY J. ABBOTT CANTRELL, M.D.

Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine, Dermatologist to the Philadelphia Hospital and to the Southern Dispensary.

AND JAY F. SCHAMBERG, M.D.

Instructor on Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine, Dermatologist to the Union Mission Hospital..

PHILADELPHIA, PA.

The following report is deemed worthy of presentation on account of the rarity of the disease and the obscurity that has until recently surrounded it. About 1865 the disease was described by Milton under the name "lupoid sycosis." This author says "I have seen in some rare cases (of sycosis) a slow superficial form of ulceration beginning with minute tubercles and attacking the hair follicles causing falling of the hair and slight though indelible cicatrices, a disorder which seems to me to be nothing more than lupus non-exedens." Unna, in 1889, described a disease which he terms *ulerythema sykosiforme* and reports a case in considerable detail. By ulerythema the latter writer means a pathologic process which goes on to the formation of atrophic scars without intermediate suppuration or ulceration; in other words, through the resorption of the cellular infiltrate. We append a full record of the case reported by Unna in order to show the similarity to the case which we describe.

Unna (*Monatshefte f. Prak. Derm.* 1889, ix, 134), records the case of a man 40 years of age, in whom the disease began in 1877 as a small pustule upon the left cheek, which soon developed into a suppurating furuncle. A roundish, reddened, slightly elevated patch about the size of a German thaler gradually formed. This wept and was covered with an accumulation of crusts. The next year there appeared upon the hairy border of the left temple a similar patch covered with crusts. The weeping and crusts continued and the process gradually involved the whole of the left cheek. The hairs of the affected part became loose and could be easily lifted out. Upon extraction whitish nodules were visible upon the hair roots. After the disappearance of the hairs the affected area became pale and there developed smooth flat scar tissue. Two years later a patch developed in the beard of the right side while upon the left the process came to a standstill. Later the patch upon the left side spread over the whole cheek, thence down to the neck. At the same time the moustache became involved upon both sides. Upon the reddened and slightly swollen skin there appeared crops of white vesicles with thick fluid whitish contents. These dried, were scratched open and formed branny crusts which resembled a starch-like dust and the face looked as if it had been powdered. From the beginning the patient shaved to prevent spreading of the affection, but now he rather believes that new points were thereby inoculated.

Present condition.—The patient looks robust and has a good healthy color. The hair of the scalp is blond and thick. The beard, which is likewise blond, is only present on the chin and neck. Both cheeks are bald except a small border on the rami of the jaws and there is evident extensive scarring. From a distance even these areas can be distinguished from the normal skin by a bluish red tint, an abnormal smoothness, and an almost satin-like shimmer. On closer examination numerous fine whitish fibers of cicatricial tissue are seen traversing the bluish red background in a sieve-like manner. On the right side of the face the borders of the patch are quite elevated. Here are seen scattered brownish scales penetrated by hairs.

In the middle of the left upper lip there is a patch one-half to one centimeter in diameter in which there is total loss of hair. There is here smooth superficial scarring.

From the middle of the chin a reddish line of small firm papules descends toward the neck and thence turns to the right. On the left side of this line the skin is diffusely reddened and is covered with small round white scales. Near here is a group of five mustard seed sized exfoliation vesicles, three of which are pierced by hairs while the other two are not, but correspond however to follicular openings.

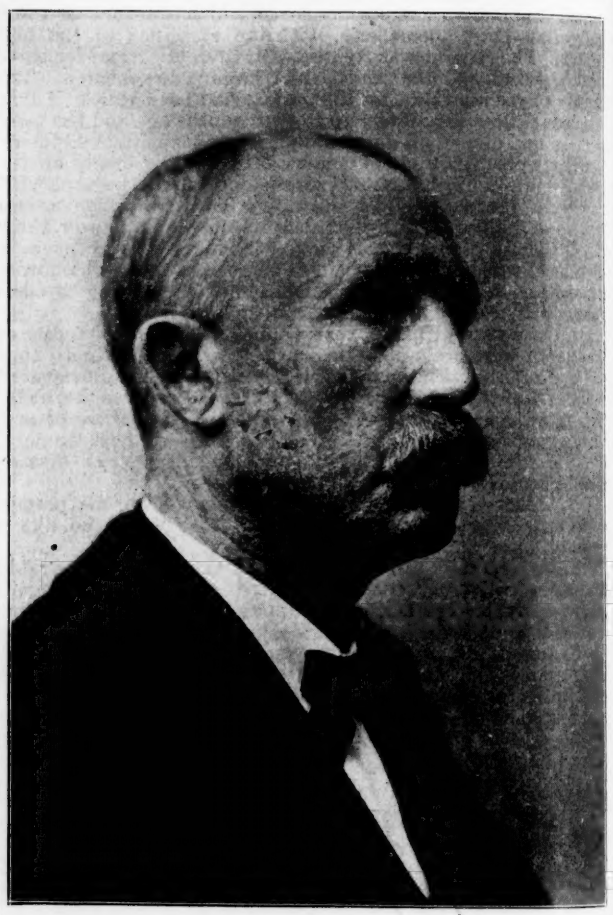
Course.—The course of the disease as well as the above description shows that this affection has nothing to do with ordinary sycosis. Sulphur, resorcin, potassium soaps of all kinds not only did no good but actually inflamed the already cicatricial areas. A constant symptom was the appearance of large numbers of whitish superficial, peri-follicular exfoliation vesicles which rapidly dried and formed crusts. The mercurial preparations alone (mercurial carbolic plaster mull and sublimate in lead water) seemed to do good. On the whole the treatment which produced local anemia was the best. The use of energetic remedies was followed by increased inflammation. At times the parts appeared passive, shortly afterward a high degree of inflammation would ensue after the use of an indifferent remedy. It was evident that there was a deep disease masked by the superficial scarring. Never were any primary purulent vesicles present. The pustules were always due to secondary infection due to pus cocci.

Furthermore the appearance of the pustules did not occur during the acme of inflammation. The patient became improved but not cured. At present there is a very slow amelioration taking place.

Brocq, in his treatise upon diseases of the skin says, "the variety to which I have given the name of 'sycosis lupoide' is observed chiefly in the beard and the morbid process presents a great degree of intensity. The inflammatory lesions are characterized by large peri-follicular pustules, by redness, by thickening of the skin and by the production of crust and scales. There is here a confluence of the neighboring elements. In a word, the affection resembles a non-parasitic sycosis which has arrived at an intense degree of inflammation and infiltration. It differs from it by the constant tendency to a regular centrifugal extension and a total atrophy of the pilo-sebaceous system. All the hairs of the affected region are radically destroyed. There persists after the evolution of the process a central cicatrix more or less hard and thickened, sometimes keloidal. It may however be smooth and soft. Often it presents upon its surface little fibrous bands more or less elevated and irregular. As the affection spreads the center clears up and the pustules, scales and crusts disappear, while on the periphery there is a halo of reddened tissue thickened, inflamed, covered with points of folliculitis, crusts and scales. This is the zone of activity of the affection. The disease thus constantly progresses in the hairy region leaving after it a skin deprived of its glandular and pilous elements, in other words a permanent alopecia.

The diseased areas are rarely multiple, there being seldom more than one or two. They may attain the greatest dimensions unless checked by the most energetic treatment. This affection differs from non-parasitic and parasitic sycosis by its peculiar course and by the characteristic tendency to leave after it a permanent alopecia. One might compare this affection with certain other diseases, until now included under the head of lupus, which also produce irremediable loss of hair; nevertheless, it differs from them by its limitation to hairy regions, by the constant absence of lupoid nodules and the bacillus of Koch. Furthermore by its aspect which is neither that of lupus vulgaris nor lupus erythematosus. French dermatologists have made the diagnosis of "lupus acneique" in the presence of typical cases of this affection. Certain foreign authors have perhaps denominated it lupoid acne but we (Brocq) prefer the name "sycosis lupoide." The most efficacious treatment is that of lupus vulgaris.

Case 1.—L. H., male, age 55 years, native of Philadelphia, a seaman in the United States Navy, now an inmate of the Naval Home, has always enjoyed excellent health with the exception of an attack of pneumonia about twelve years ago. In 1886 the patient suffered from a pustular disease of the beard which lasted two years and then became well. In 1893 he presented himself at the skin dispensary of the Hospital of the University of Pennsylvania with a condition which was diagnosed by Dr. Hartzell, as an ordinary non-parasitic sycosis. The patient stated at the time that he had had an eruption about two years. He remained under treatment for a considerable time, but was later lost sight of. In March 1895 he presented himself to our view at the Philadelphia Polyclinic. At this time the following appearances were noted: The diseased areas involved both cheeks but the condition was more marked upon the right. Upon this side the diseased area was pyriform in



CASE 1.

shape, with the base downward extending from the angle of the jaw to the zygoma, four inches in length. The diameter at the base was two inches, at the stem one inch. The patch presented a pinkish red color, which here and there faded into the surrounding skin, while at other places there was a defined border. Perhaps the most striking peculiarity of the skin over this region was its smooth, glistening, atrophic appearance. Instead of the normal epidermal covering there was a soft shining wrinkled pellicle. Beneath the diffuse redness there was evident throughout the patch, a whitish stipling. The surface gave to the finger passed over it a velvety sensation, but it was evident upon firm pressure that there was increased resistance of the derma beneath. At first sight it appeared as if there were no follicular openings over this area, but upon closer investigation short hairs could be seen piercing the fine epidermis. Some portions of the patch showed complete loss of hair, especially toward the center. Near the periphery there was less hair loss. No follicular suppuration as evidenced by the presence of pustules was noted. The diseased process involved

the inter-follicular region just as much as the hair follicles. Scattered over the patch were perhaps half a dozen vesicles and blebs, varying in size from a pea to a cent. These were very flat, being not more than one-sixteenth of an inch above the level of the skin. The epidermal covering was very thin. Their contents were invariably viscid and transparent. After rupture the vesicles and blebs collapsed and formed brownish crusts which exerted traction upon the surrounding skin throwing it into radiating folds. Some of these crusts subsequently became purulent as a result of accidental infection. Upon their removal there were denuded surfaces which exhibited serous exudation. Here and there was a fine furfuraceous scaling. The entire patch was slightly depressed beneath the surrounding healthy skin. Upon the left side of the face the patch was irregular in shape, about one inch square and one inch above the angle of the jaw and one-half inch internal to the lobule of the ear. There were a few small outlying areas connected with the larger patch by isthmuses. The patch was redder, more sharply defined, less atrophic, and depressed than upon the opposite side of the face. Within two weeks a new patch, about the size of a silver quarter, has made its appearance above the previously described area, but not in any manner connected with it. This patch simply shows hyperemia. As upon the right side there were vesicles, blebs and crusts, remains of former lesions. The course of the disease has been extremely obstinate during the six months that he has been under our observation and there has been absolutely no improvement. On the contrary the patches are actually larger than they were upon his first presentation at the clinic. At certain times there seemed to be an improvement, namely a reduction in the amount of hyperemia and lessened number of vesicles and blebs. This amelioration however seemed to be spontaneous and not the effect of treatment. Crops of vesicles and blebs appeared at intervals of a day or two. They would spring up in a few hours and be attended by such intense itching that the patient would be obliged to rupture them. Sulphur was used, both in solution and as an ointment, without effect. Sedative lotions especially those containing calamine and zinc oxid seemed to give most relief. The patient for a time was placed upon Fowler's solution, 0.25 c.c. thrice daily. Within four or five days a marked aggravation of the condition occurred. There was very rapid spreading of the patch, increased hyperemia, increased bleb formation, and augmentation of the subjective phenomena. Upon the cessation of the drug rapid improvement followed and the face became better than it had been for months.

It will be seen from a comparison of these reports that the disease described is one and the same. The minor differences result probably from the cases having been seen in different stages.

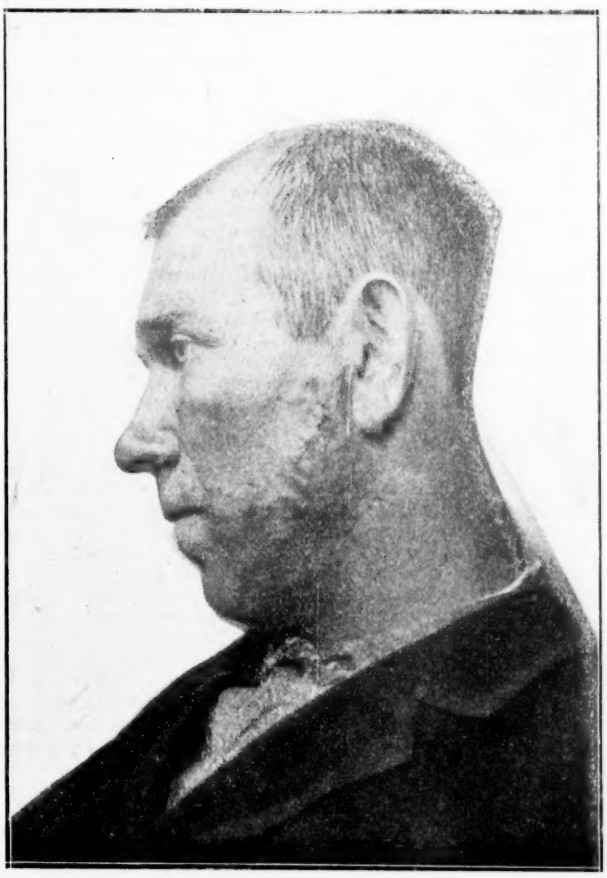
The disease consists essentially of a follicular and peri follicular inflammation which goes on to the destruction of the hair follicles and the formation of atrophic scars. Brocq does not mention the formation of vessicles or blebs but had he kept his cases under observation long enough these might have made their appearance. Unna regards his case as having been from the start an ulerythema; our case had a distinct antecedent history of an ordinary non-parasitic sycosis. There is a general agreement as to the marked rebelliousness of the affection to treatment.

Microscopic examination.—Biopsies were made upon several occasions, small portions of skin being excised from the center of the patch upon the right cheek. The greatest care was necessary to prevent detachment of the thin epidermis. This was so loosely adherent to the corium beneath that a simple vertical incision was sufficient to separate it. In two excisions, the epidermis came off before the biopsy was completed. In the third, by excising a larger piece of skin the epidermis remained adherent to the corium except at both ends. The excised block of skin was hardened in successive strengths of alcohol and imbedded in paraffin. The sections were stained with the Biondi-Ehrlich-Haidenhain stain, hematoxylin and eosin, and by Gram's method.

The stratum corneum and stratum lucidum are absent. The stratum granulosum is present and well marked. The rete mucosum presents no pathologic changes. It is detached from the papillary layer of the corium at both ends of the section; in the center it remained adherent; the point of adhesion corresponds to the mouth of a hair follicle. On examining the specimen under low power there is at once apparent an intense sharply defined cell infiltration. Innumerable nests of varying sizes and shapes filled with deeply stained cells are scattered throughout the corium. Their walls consist of fibers of connective tissue. This cell infiltration is most marked around the hair follicles, of which there are several in the section; furthermore, the infiltration is densest near the mouths of the follicles. The papillary layer of the corium shows great overgrowth of connective tissue, between the fibers of which are scattered cells. The papillary blood vessels are obscured from view by this fibrous tissue. These nests of cells extend from the sub-papillary layer down to the deepest portions of the corium. In certain places fibrous connective tissue seems to have replaced previously existing hair follicles and sebaceous glands. The sections, in all, show but three hair follicles and no sebaceous glands. As the piece of excised skin was quite large and taken from the center of the bearded region it is evident that there is considerable pilo-sebaceous atrophy. The sweat glands appear normal. Numerous sudoriferous ducts are seen coursing through the corium and are, for the greater part, normal although a few present some cell infiltration.

The cell infiltrate is composed chiefly of leucocytes although there are also present cells derived from the connective tissue corpuscles. The round cells however are in great preponderance. Giant cells are absent. The examination for tubercle bacilli is entirely negative.

While this affection simulates lupus vulgaris both clinically and pathologically it is evident that it is not identical with that



CASE 3.

disease. The cicatricial appearance, the extreme rebelliousness to treatment and the circumscribed cell infiltration are certainly suggestive of lupus; on the other hand the absence of lupus nodules and ulceration clinically and the absence of giant cells and tubercle bacilli in the microscopic section prove it to be something else. We agree with Unna in regarding this disease as a distinct entity and accept his name "*ulerythema sycosiforme*" as the best one from our present knowledge of the disease.

Two years later this case shows the following appearances: The patch on the right side was markedly white and atrophic, the border was slightly infiltrated and raised, there was absence of vesicles and blebs. The entire process seemed to be inactive.

Upon the left side there was peripheral spreading of the patch, the border being marked by red inflammatory pustules. The patient stated that for a period of two months the disease seemed to have been cured.

Case 2.—J. Q., aged 35 years, laborer, six years ago noticed pustules in the beard of the left cheek. He states that since then the affection has been gradually growing worse.

Present condition.—The diseased area upon the left side is irregularly oval shaped, being about three inches by one inch in diameter and extending from the zygoma to a point one inch below the angle of the jaw. The epidermis of this region is smooth, shining and atrophic; by pressure it is thrown into radiating folds. The patch is whitish but presenting a mottled reddish appearance due to a superficial telangiectasis. The aural border of the patch is considerably raised above the level of the skin and exhibits, to the touch, marked infiltration, keloidal in character. The hair follicles and the mouths of the sebaceous glands are entirely absent over this area.

Upon the right side there was a triangular patch one and a half inches by three-quarters of an inch. The border is markedly infiltrated as upon the opposite side. There is atrophy of the hair follicles but the atrophic appearance of the skin is not as marked as on the left side. Below this patch are several follicular pustules and the disease seemed to be spreading in this direction. Acne lesions were present upon other portions of the face.

There were no vesicles or blebs present.

DISCUSSION.

Dr. ALLEN—There exists a disease, call it lupoid sycosis or ulerythema sycosis, which differs from lupus erythematosus. I am surprised to hear that this disease resembles lupus vulgaris, but to me, the lesions appear more like lupus erythematosus than lupus vulgaris. Lupoid sycosis is in my opinion a distinct disease.

Dr. DUHRING—The experience with this disease has been so limited that we have to view the clinical appearances with much care. I have seen a few cases, some of them ill-defined and others well marked. Both cases I thought were characteristic examples of this disease. Lupoid sycosis was a disease which presented many clinical pictures; some writers describing it as resembling lupus vulgaris, others as lupus erythematosus and others as acne. When I looked at the first case I thought it presented features more like lupus vulgaris than lupus erythematosus; so it might be mistaken for the former disease. The second case resembled more an acne and resembled a case which had been under my observation for a year and the man was getting well under mild treatment (sulphur ointment). The hairs were returning, which showed that the hair follicles had not been destroyed. Others who had seen the case were surprised at the return of the hair. I had been inclined to class it with the sycosis but now altered my opinion. The prognosis in this disease was not so unfavorable as others had supposed, since in one case I have seen the hair return. In the second case the idea of parasitism had not occurred to me except perhaps in connection with the lesions on the neck.

Dr. FORDYCE—Until we know more about the pathology of lupus erythematosus it will be difficult to classify this disease. The case is very like lupus erythematosus because of the sharply defined edge of the lesion. The microscopic picture also resembles closely the same disease. The presence of nests of small cells and the absence of giant cells would cause me to group it under lupus erythematosus rather than sycosiform.

Dr. SCHAMBERG—These cases present different types of the disease and they agree in many respects with Dr. Duhring's case. In the latter the skin was soft and there was no interfollicular scarring. All the cases of this disease are preceded by sycosis and one case was more like lupus erythematosus, but there had been no scales, whereas in the other patient blebs had made their appearance at one time, a lesion which never appears in lupus erythematosus. Blebs did not occur in Duhring's case; I think that pressure of the collection of cells on the neighboring nerves might have caused the bleb formation. I have never seen such deep infiltration of cells, in the corium, in lupus erythematosus.

THE SYMPTOMS AND NATURE OF ERYTHEMA MULTIFORME.

Presented to the Section on Cutaneous Medicine and Surgery at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY LOUIS A. DUHRING, M.D.

PHILADELPHIA, PA.

By the term erythema multiforme I understand a disease characterized by certain tolerably well-defined erythematous lesions upon the skin, which undergo a variable evolution with a tendency to run an acute course and to recover spontaneously. The lesions are chiefly erythematous in type and are superficial, their seat being in the corium, especially in the papillary layer. They are not hyperemic but are distinctly exudative in character. They consist of macules, maculo-papules, papules, papulo-vesicles, vesicles and blebs. They manifest a disposition for one form to pass into another, thus frequently, but not always, constituting a multiform eruption, hence the name erythema multiforme, originally proposed for the disease by F. Hebra. While therefore a notable variety of lesions frequently, but not always, characterize the disease, it must not be supposed that every exudative erythema is necessarily an erythema multiforme. There are certain polymorphous erythemata which are to be classed as erythema exudativum which are not instances of erythema multiforme, as for example erythema scarlatinoides. In the several cutaneous manifestations of erythema multiforme there are characters common to all the varieties of lesions, as regards their form, shape, outline, their occurrence together or in proximity, color, evolution and involution, which stamp them as being merely different inflammatory expressions of one process. They constitute a group of peculiar inflammations, for the most part erythematous lesions, to which we give the name erythema multiforme. They may be distinctly marked in their general features, constituting easily recognizable dermatoses, or only faintly pronounced, so that possibly the diagnosis can be made only by observing the case for a few days and noting the evolution of the process. In my own field of observation many more of the latter than the former cases present themselves. Well-defined cases, such as are usually selected by authors to illustrate atlases of the diseases of the skin, are comparatively rare in Philadelphia. There occur, as I view the subject, a number of cases of acute, ill-defined erythematous diseases which are difficult to classify because they show so little that is distinctive, and yet if they are followed from the beginning to the end of the cutaneous manifestations, will usually give evidence that they are actually faint expressions of erythema multiforme. In defining disease authors, I think, are inclined to adhere too closely to recognized types of diseases and do not allow sufficiently for variations. Having only defined types in mind the clinician may fail to recognize the disease before him because it falls short of the accepted sharp definition.

As already intimated the predominant idea the world over of erythema multiforme comprises an acute disease, running usually a course extending from one to three weeks and which may relapse or recur at shorter or longer intervals. The lesions, whether in the form of macules, papules, vesicles or blebs, are inclined to be sharply circumscribed, and especially in the case of macules, to be marginate. The color is a bright, vivid or deep red, often a raspberry red. The maculo-papules, papules and papulo-vesicles are three forms frequently occurring together or in sequence, are peculiar in that they almost invariably undergo in the course of their evolution central superficial necrosis. As they grow and extend in size they break down in the center, forming a slight or marked depression and a crust, the latter often being insignificant. This is one of the characteristic features of the maculo-papular, papular and vesico-papular varieties of the disease. It is not only a clinical but also a histo-pathologic feature. Where the process inclines to manifest itself on the skin as a broad erythematous lesion, occu-

pying a small area, or, it may be, the greater part of the general surface, margination in the form of arcs and segments of circles is common. This is often, but by no means always, due to the confluence of several lesions. The mere fact of confluence will not give rise to these peculiar forms, other factors, in connection especially with nerve influence, being, I believe, accountable for it. The angio-neurotic or vasomotor nature of the disease is exemplified not only in this feature but in many other ways. But this observation does not inform us of the intimate nature or the cause of the manifestation. I may here refer to features which every clinician has observed, but what authors fail to dwell upon sufficiently, that the nervous system influences the cutaneous manifestations of the disease in a remarkable manner. There exists in connection with most of the somewhat diverse lesions a notable tendency to spread on the periphery while healing or disappearing in the center. It presents many of the features of herpetism. The process in its course is much like that of tinea circinata due to the presence of a fungus. It has often occurred to me to query why the natural lesion and the evolution of these two processes, due to entirely different causes, so far as we are able to determine this point, should be so much alike in many particulars. One is due to some unknown cause acting from within, the other from a well-known cause acting from without, yet the lesions and their evolution possess features which link them from a clinical standpoint So much so is this the case that until within the last thirty or forty years these diseases were confounded by the most experienced dermatologists. The question of interest is to determine what part, if any, the peripheral nerves or the central nervous system play in the production of the circinate lesions of tinea circinata.

Having decided in outline the general character of the local manifestations, it may be inquired what, if any, are the constitutional or general symptoms. Do the latter always occur and thus form a part of the disease? In approaching this subject I desire to lay special stress on the observation that in the descriptions of erythema multiforme in text books, very little is said about the general symptoms. They are, I think, oftener present than is usually conceded. If this be true it would show that they are almost as much a part of the process as the cutaneous manifestations. This I believe to be the case in many instances. The general symptoms, however, are more variable in form than the manifestations upon the skin, and for this reason probably are overlooked or are not taken into account in viewing the entire process In mild cases, of which a goodly number have come under my observation, they may be trivial. I will refer first to the milder symptoms. They naturally vary somewhat with the age of the patient, but in adolescents or young adults consist of malaise, lassitude, aching in the limbs and trunk or joints, loss of appetite, furred tongue, constipation, fever in a variable degree, often slight, parched lips, and the like. It may be observed that such symptoms are in no way peculiar, being seen in a multitude of acute diseases. This is true, but they nevertheless constitute in many instances, a part of a process of which the cutaneous symptoms are the most striking. The amount of the cutaneous disturbance, however, by no means always indicates the gravity of an entire disease. Thus, by way of example, in dermatitis exfoliativa the cutaneous manifestations may be severe and the general symptoms slight, while on the other hand in some cases of the eruptive febrile diseases, as measles, the cutaneous are slight and the general symptoms pronounced. If we note the general symptoms in a sharp attack there may exist distinct rheumatoid symptoms, including articular stiffness, swelling or pain, localized or fugitive, together with all the symptoms enumerated as liable to be present in the milder forms of the disease. These and other, sometimes graver, symptoms may make their advent suddenly or gradually before or with the appearance of the eruption. I would interpret them, as I would the eruption itself, as being in many instances due to an infection, similar in nature to that which occurs in certain other erythematous efflorescences upon the skin, as for example, rubella and pityriasis rosea. I believe, then, that what we call erythema multiforme is in reality a general disease, in many instances, of an infectious nature. Of the precise nature of the infection we know little or nothing. I venture the opinion, however, that the cause is probably allied in nature to those which give rise to influenza and similar diseases, and probably to those which occasion some cases of so-called pityriasis rosea. I say advisedly some cases because I think it will be found that several diseases have been included under the heading pityriasis rosea, some acute, others chronic in course.

There is another group of cases, much smaller than those mentioned, that are well known, and which generally pursue a chronic course. The symptoms are more general and graver in character than in erythema multiforme, the lesions being hemorrhagic. The general symptoms are similar or like those I have briefly outlined as occurring in some cases of severe erythema multiforme, but they are more pronounced, and in addition hemorrhages occur, slight or severe, which may relapse or recur in the intestinal tract or elsewhere The cutaneous lesions are hemorrhagic and not erythematous; that is to say, that take on a hemorrhagic character either in the beginning or soon after, the erythematous character being for the most part or wholly wanting. These cases belong to the hemorrhages of the skin rather than to the erythemata. They possess much in common with infectious purpura, and I think should be regarded as examples of that disease. I make this observation because some writers of late have been disposed to consider them as erythema multiforme. Thus, we note that Osler has recently reported an interesting series of these cases, designating them erythema multiforme. The latter title, in my opinion, is inapplicable to these cases, which if they are investigated will be found to possess the symptoms of purpura rheumatica much more definitely than of erythema. If we group these purpuric cases with the erythemata it will become necessary to change the definition of erythema, which we are by no means prepared to do. I grant that the causes which may give rise to some cases of erythema multiforme may in like manner be concerned in the production of some forms of purpura, and I am of opinion that such is sometimes the case. But this fact does not make them one and the same disease. One cause may give rise to several diseases, in one case involving internal organs, in another instance the integument. The points to which I have directed special attention are the following:

1. That erythema multiforme is a disease of the skin, having a clearly outlined definition as regards the cutaneous lesions.

2. That general or systemic symptoms are often obviously recognizable, and occasionally are severe.

3. That we should distinguish between erythema multiforme and other forms of exudative erythema, not every exudative erythema being an erythema multiforme.

4. The term erythema multiforme should be confined in its employment to characteristic inflammatory manifestations, especially of the superficial strata of the skin, and that where pronounced hemorrhagic lesions occur in the integument, as well as elsewhere, the disease should be viewed as purpura.

5. Erythema multiforme is probably not infrequently an infectious disease, both the general and local symptoms pointing to this conclusion.

DISCUSSION.

Dr. BAUM—I have seen both varieties of erythema multiforme on the same patient, *i. e.*, the erythematous variety on the upper extremities and the hemorrhagic lesions on the legs. I think the disease due to a vasomotor disturbance. I recall a case of this disease in which there were present alternating bullous and hemorrhagic lesions. A relapse had occurred after the death of a sister and it presented the large bullous variety in the hands. I think there were lesions also in the bowels, because there was marked irritability there.

Dr. BULKLEY—I consider it an infectious disease and due to an auto-intoxication. I have seen many cases of this disease in recently landed immigrants. I advise the administration of Startin's mixture and a calomel purge. The rheumatic element occurs sometimes and I regard it as another symptom.

Dr. HARTZELL—All the cases classed under this disease do not belong there. Erythema multiforme exhibits special features of an infectious disease. There are joint affections which are rheumatoid in character, but it is not rheumatism. I do not think the course of the disease is at all influenced by treatment. A number of cases are due to various poisons, *e. g.*, drugs, but the lesions should not be classed as erythema multiforme.

Dr. POLLITZER—The cutaneous lesions are only symptoms of a general disease and the affection is due to some disturbance of the blood vessels. Pathologically there is an erythema accompanied by an exudate and the hemorrhagic form is only one of degree. I do not think it correct to classify the purpura which sometimes follows the ingestion of quinin, with the thrombosis of endocarditis.

Dr. COOK—I think erythema multiforme a group of diseases due to neurotic influences.

Dr. GILCHRIST—I consider the cutaneous lesions are probably the expression of a general affection. I have examined numbers of microscopic sections taken from four or five cases of the erythematous variety of this disease and also from one case of the bullous form. The results of my observations seemed to point to the fact that the cutaneous lesions were brought about by some toxin or some micro-organisms which could not be demonstrated, forming or developing directly beneath the epidermis. The polynuclear leucocytes wandered out into this region and appeared, in the vesicular variety, to become disintegrated or killed as soon as they had wandered out. This condition seemed to point to the fact that the poison was a powerful one. This remarkable microscopic picture could not be explained by any neurotic influences, nor by any alteration in the vessels. The bullous and hemorrhagic varieties of the disease were only one of degree.

With reference to immigrant dermatitis, a good deal of experience was had with this affection in Baltimore, since it was a considerable port of entry for immigrants. I would not class this group with erythema multiforme but would consider it as a separate affection. In the treatment of erythema multiforme I have found sodium salicylate very efficacious.

Dr. DUHRING—Most of the speakers agree with me that there is more in this disease than appears on the surface. I consider Hebra's definition, which was given thirty-five years ago, just as applicable today and could not be improved upon. Hebra, however, did not touch upon the constitutional symptoms. Erythema multiforme is not hemorrhagic. Although the causes are identical, yet all the varieties are not infectious. Immigrant dermatitis I would call erythema exudativum. The cases of erythema multiforme I have seen in Philadelphia are milder than those seen in New York, London, etc.

ON VARIOUS FORMS OF CUTANEOUS TUBERCULOSIS.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY A. RAVOGLI, M.D.

CINCINNATI, OHIO.

The affections of the skin produced by tuberculosis have shown such a variety of form that they offer nearly the same interest as those arising from syphilis. On account of the complex construction of the skin the tubercular lesions must present a different appearance according to the organs and tissues of the skin involved. When the glands of the skin are affected we see lichen scrofulosorum or folliculitis; when the lymphatics are affected, the disease manifests itself in the form of tubercular gumma, and as verrucous cutaneous tuberculosis, or lupus, when the papillary layer or the derma is invaded.

Figure 1.

The cause of these eruptions is the tubercle bacillus, which is found in the structure of the skin. We have, however, other cutaneous eruptions where no tubercle bacilli are present, and they are the result of its toxic products. The toxic power of the tox-albumins has been already demonstrated, and it gives the explanation of those forms of lupus erythematosus and of lupus pernio of Hutchinson. In these cases the tubercle bacillus may be in the internal organs far from the skin or in the mucous membranes near the affected skin, and the toxins are the cause of the eruption which is only symptomatic and persistent on account of the persistency of its cause.

The most superficial form of tubercular erythema is considered a serious symptom for the future of the patient. Erythematous eruptions in form of roseola

remaining from twenty to thirty days have been observed by Bayet and Schlangreieff, in individuals affected with acute pulmonary tuberculosis. Last year I attended a lady with a superficial form of lupus erythematosus of the face and hands, suffering with advanced pulmonary tuberculosis. The eruption on the face appeared two months after the pulmonary symptoms became manifest remaining for over one year and when the pulmonary symptoms increased in severity, the eruption had nearly disappeared.

Those forms of cutaneous tuberculosis, in which the tubercle bacillus and the tubercular process is present in the skin, are the subject of this paper. In many of these cases we find the individual in good general health, in spite of the cutaneous ulcerations. Some of these forms are the result of auto-inoculation, the tubercle bacilli from the same person inoculating the skin, others are the result of outside inoculation as in verruca necrogenica.

H. Hallopeau[1] calls these forms *tuberculoses cutanées bacillaires* in order to indicate that they are the direct result of the presence of the tubercle bacillus in the skin. In these cases we have the alterations in the papillary layer with accompanying lesions of the epidermis and often also of the derma. The lesions of the papillary layer take on a vegetating form, for which reason they were called by Riehl and Paltauf, *tuberculosis verrucosa*, or *tuberculosis papillomateuse* by Besnier, Deboue and Brissaud.

Figure 2 *a*.

The illustrations are of three cases of cutaneous tuberculosis of this kind, where the infection came directly from the same individual, and in each the affection showed a different course and appearance.

Figure 1 shows an extensive tubercular eruption in a lady 52 years old, suffering with pulmonary tuberculosis for over three years, accompanied with profuse expectoration. The eruption has now completely disappeared and only superficial scars show the spots formerly occupied by the eruptive plaques.

[1] Sur le rapports de la tuberculose avec les maladies de la peau, autres que le Lupus Vulgaire, Third International Congress of Dermatology, 1896.

The examination of the sputa revealed a large number of tubercle bacilli. The eruption began on the extensor surface of the right arm near the wrist joint, with an intense itching and an erythematous patch which became somewhat swollen and was soon covered with small pustules, forming dirty brown crusts. While the pustules were spreading superficially in the middle, ulcerations formed which gradually gave place to vegetating granulations, showing the verrucous appearance. Almost contemporaneously patches of the same nature affected the lips, spread upon the nose, cheeks and forehead, scalp and both sides of the neck. On account of the itching sensation she often rubbed the spots and the other hand was inocculated on the dorsal surface of the third finger in the form of a large eruptive spot with the same characteristics as the spots on the face. From cut one can easily see the three zones described in the typical patches; the outer zone erythematous, slightly raised above the level of the normal skin, the middle zone, which consists of a dusky livid infiltration with scattered ulcerations, and small abscesses, somewhat raised above the former; the inner zone shows fissures and sprouting up from them are small warty projections making this zone somewhat higher than the others.

Figure 2 *b*.

I was not allowed to make microscopic examinations of the case, but the attending physician asserted that he found tubercle bacilli in the secretion of the ulceration. The most remarkable feature in this case was the relatively acute course and the recovery. The eruption lasted from three to four months, recovering gradually like any other superficial ulceration, leaving a red parchment-like scar. The lady has also improved considerably in her general health.

Figure 2 is another case of tuberculosis verrucosa cutis, which lasted over four years in spite of strong and constant treatment. At present the ulcerations have nearly all healed. The patient is a man of strong physique, molder by trade, has always enjoyed good health, never had syphilis. Five years ago he had an abscess on the internal region of the left leg

with caries of the tibia. In the cut an irregular scar in this region shows it plainly, and at this point was the beginning of the cutaneous ulceration. It spread from the edges of the wound and gradually extended, covering the whole extent of the limb, to the dorsal surface of the foot. At the same time another abscess of the same nature, with caries of the bone affected the right leg. Under surgical treatment the bone healed, the surface was covered with granulations, but no healthy scar could be obtained. The ulceration spread with exuberant vegetations, encircling the whole calf of the leg, reaching the opposite side in the malleolar and tarsian region. The vegetations were in the form of a mass elevated above the level of the normal skin, easily bleeding in some places, covered with crusts, in others with thick epidermic masses. The detritus was often examined for the tubercle bacilllus, but it was never found. In a few sections the epidermis was much thicker, red and of verrucous appearance, the papillæ greatly enlarged, with an enormous infiltration of small round cells, in some places arranged in foci, resembling the tissues affected with tuberculous inflammation. In some, few giant cells could be found surrounded by numerous nuclei of a tubercular character.

In this year after a tonic internal treatment the patient has gained considerably in flesh. The patches have been cauterized with Vienna paste, in other places have been curetted, and gradually with the application of a resorcin and creosote salve the ulcerated surface began to appear more healthy and had nearly all healed, leaving scars and an atrophic condition of the affected regions.

Bacillar infection may be carried from the lymphatic glands to the skin as we often see in the scrofuloderma. The same infection can at times be spread from the inguinal glands to the skin and surrounding tissues in the form of phagedenic bubo. Figure 3 shows a young colored man with an enormous ulceration of the right groin spreading down to the internal region of the thigh, on the penis and on the scrotum, and another beginning on the other groin.

He is 20 years old; his father is living and in good health; his mother died of consumption. He has been affected with scrofula, and the condition of the cervical glands, swollen and covered with scars, attests it. He was admitted to the hospital for inguinal bubo. He stated that nearly eight weeks before entering the institution he noticed a small ulceration at the end of prepuce. A few days after there appeared a swelling of the left groin. The skin soon became tense and painful, broke down and discharged a foul sanguinolent and purulent fluid. He stated that the sore on the prepuce appeared two months after the last intercourse. When he was admitted Nov. 7, 1896, he appeared to be well developed and nourished, only his neck showing many scars of old tubercular glands. Both lungs gave mucous râles at the apex in prolonged expiration, no dulness. The body was free from eruption, no sore throat, no alopecia. The right inguinal region showed a swelling of about the size of the fist, two small openings gave issue to some blood and pus. The base of the swelling was hard for some distance. Glands of left groin were also enlarged. There was a small, hard, superficial ulceration on the free end of the prepuce. Under chloroform the right groin was opened, thoroughly curetted and packed with iodoform gauze. Instead of obtaining cicatrization, the whole surface began to show a large ulcerated surface, with fungous growths affecting the inguinal region to the internal region of the thigh, the scrotum riddled with sinuses, the skin of the penis showed hard lymphatic vessels like small gummæ, which gradually formed abscesses and ulcerations with the same fungous appearance. The left inguinal glands were hardened and formed a large mass with points of suppuration beneath.

February 1 the patient was again placed under the anesthetic; the sinuses were opened, the glands removed, the granulations thoroughly curetted and the whole surface was cauterized with the thermo-cautery. Succeeding dressings were made with acetanilid. Although no symptoms of constitutional syphilis had so far appeared, yet liquor Van Swieten had been administered, together with tonics and reconstituents. Mercurial plaster had been used on the ulcerations without result. In order to observe the reaction to tuberculin, injections were given of from 1 to 5 mgr., and at every injection he had fever ranging from 101 to 103 degrees F. When I went out of service the ulceration was somewhat healed, the granulations appeared healthier and the patient was able to go about. Symptoms of pulmonary tuberculosis were more apparent.

I have referred to this case as an example of mixed infection, and from many cases of phagedenic ulcers I must come to the conclusion that tuberculosis of the glands and lymphatics is often mixed with the virus of chancroid or syphilitic lesions, producing the dreaded destructions of phagedenism.

This boy was affected with tubercular glands, and when the glands broke down on account of the other infection, tubercle bacilli came in contact with the ulcerated surface, causing a tubercular ulcer in place of the bubo. The gummous tuberculosis is in many instances the cause of the cutaneous tubercular ulcers; this is a kind of intermediary between the deep-seated tuberculosis and the superficial of the skin. In all tubercular forms we must see a mixed infection, as the cocci of the pus appears in every tubercular process as secondary elements, so that we find in the middle a cheesy, degenerated point with a purulent softening, as referred to by Leistikow.[2] In cases of phagedena we may have not only the staphylococcus pyogenes and the tubercle bacillus, but also the syphilitic virus or the micro-organism proper to chancroid, which are the commencing agents of the ulceration.

In our case it is rather difficult to establish with certainty whether the ulcer which started from the prepuce was a chancroidal or a syphilitic one. The patient after six months has not yet shown any syphilitic symptoms, with the exception of the phagedenic bubo. It is also hard to believe it a chancroid, when the patient asserts that the ulcer appeared two months after the last intercourse. It seems to me that an accidental sore of some nature, has started the inflammatory process in the lymphatic vessels of the penis and inguinal glands which, affected already with tubercular process, broke down, causing extensive abscesses, and the tubercle bacilli from the tubercular glands have infected the surrounding tissues, causing a cutaneous and subcutaneous tubercular gummous ulceration. The ulcers of the dorsum penis and scrotum are due to tubercular lymphangitis, as we found the affection to start directly from the lymphatic vascular trunks. They appeared at first hard

[2] Über Skrofuloderma, Mon. Hefte für Pract. Dermatol., IX Bd. 1889.

like stems under the pressure of the finger, then they became larger, of dusky color, breaking down into a quantity of purulent and sanguinolent fluid and a great discharge of lymph. In this case two conditions could have been the cause of the process. Either the ulcer itself was of tubercular origin and infected the lymphatics, or the lymphatics were already infected with tubercle bacilli, as were the inguinal glands, and therefore the staphylococci started the inflammatory process around the already infiltrated tubercular tissues producing tubercular ulcerations with papillary growths.

I referred to these three cases of tuberculosis verrucosa cutis on account of their peculiar origin. The first was the result of the inoculation of the tubercle bacilli from the sputa; the second was produced by the tubercle bacillus from the diseased bone; the

Figure 3.

third from the bacilli contained in the tubercular glands.

Each one has some important features. The first in which the papillary layer and the epidermis only was superficially affected, healed in about four or five months, leaving superficial scars. The second which affected the derma deeply formed thick vegetating papillæ which lasted nearly four years, stubborn and persistent in spite of the surgical means employed. The third, a type of mixed infection affecting the skin in its deepest layers and the fascia, with vegetating and papillomatous appearance, equally resisted the cautery and the curetting. There is no doubt that the layers of the skin affected have much to do with the more or less persistent character of these affections.

I now call your attention to two cases, which I classify among the the scrofulo-tuberculosis, according to the distinction proposed by Maurice Vallas.[3] In these cases we do not find any outside inoculation; they are bacillary in their nature like lupus, and are primary, showing no trace of their origin. They could be ranged with Leloir[4] among the atypic varieties of lupus.

Figure 4 is a good specimen of this variety of cutaneous tuberculosis. It is of a man 30 years old, of good physique, blond, lumber-yard hand by occupation. No history of tuberculosis nor cancer exists in his family. He never had syphilis, has always enjoyed good health. Dec. 29, 1896, he came to the hospital for ulcerations of the skin. The eruptions had begun fifteen months previously, at first in the form of a little indurated red patch over the crest of the left ilium extending internally. It gradually spread and began to break down in the center, form-

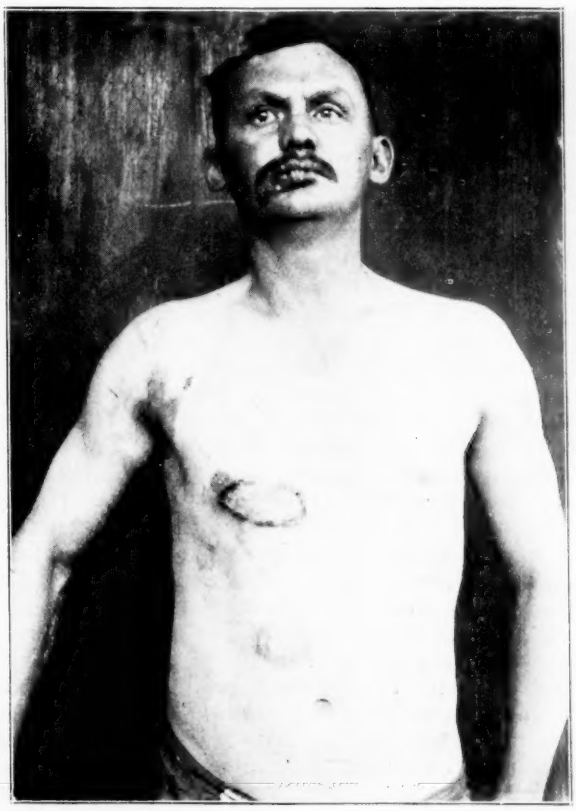


Figure 4.

ing an irregular ulcer, tender and slightly painful. When the ulcerated patch had attained the size of a silver dollar, healing began at the center, leaving an irregular thick and superficial scar. The peripheral ulcerations continued spreading and after assuming the size of the palm of the hand, stopped and after some months healed. Other patches of the same character after an interval of two months appeared, one on the right leg near the knee, one on the abdominal wall to the right of the umbilicus, one in the right axilla and shoulder, and one on the right side of the mouth, involving both lips. The eruption consisted of nodules deeply seated in the derma and coalescent at the periphery of a thick cicatrix, resembling the lupus scars. Some of these nodules were

[3] Les ulcères tuberculeuses de la peau, Thèse de Lyon, 1887.
[4] Ann. de Dermat., 1888.

already ulcerated and covered with thick brown crusts, and some with thick epidermic scales.

Under the microscope the corium appears affected with round foci infiltrated with small cells grouped together. The same cells are infiltrating the connective tissue, and the fascicles appear in a reticular manner separated by the cellular infiltration. Small blood vessels appear enlarged and some are plugged with infiltration, showing a kind of endo-arteritis. In some places the papillæ have been destroyed by the infiltrating elements, and where they remain appear enlarged and hypertrophic.

Tubercle bacilli were not found. No doubt this was a tubercular form of cutaneous disease, which had a great resemblance to lupus, and which we can refer to as an atypical variety of lupus.

The treatment consisted in tuberculin injections of from 1 to 2 mgr. every other day. The first injections were followed by fever and local reaction. The temperature rose three hours after the injection to 102 F., with symptoms of general malaise, pain in the spinal region, and sometimes vomiting. On the local spots, the reaction was exceedingly marked, an intense vivid purplish color showed all over the patches and nodules, and the ulcerated spots appeared of dark brown color, as after cauterization. After the third injection the temperature rose only to 99 with very little general disturbance, but the local reaction was always marked. Locally a dressing of sterilized vaselin was used. The crusts were soon removed; the ulcers began to be covered with good granulations, and on January 9, the ulcerations having completely healed, the patient was discharged.

Figure 5 shows another superficial tubercular skin eruption of ulcerative nature, which can be referred to the same class of tuberculosis lupoides. The patient was admitted to the hospital Jan. 11, 1897, for a diffuse ulceration on the left thigh, coursing nearly the entire gluteal region and abdominal wall. Another patch of the same nature is in the left mammary region. He was 44 years old, of poor physique, had suffered a long time with pleuro-pneumonia, no history of syphilis can be found. The present eruption began three years ago as a small hard patch, somewhat elevated above the level of the normal skin which soon broke down, causing an ulceration. This enlarged in a serpiginous way, healing slowly in the center and ulcerating at the edges, until in nearly three years it had taken on the proportions referred to. The ulcerations after healing left very superficial scars, depressed in the center and atrophic, which gradually became very white.

The examination of the chest did not reveal marked dulness nor râles.

The affection had been treated previously as a syphilitic one with iodid of potassium and local application of mercurial plaster, with little results.

As soon as he entered the hospital he had tuberculin injected from 1 to 3 milligram. The fever was not marked, but the local reaction was very striking. The whole affected surface became a purplish red, and the ulcerated places appeared as though they had been cauterized.

In this case also, the whole treatment consisted in tuberculin injections alternate days. Elixir of iron, quinin and strychnia internally, and locally a simple dressing with sterilized vaselin.

Under the tuberculin the progress was so rapid that March 18 he left the hospital entirely recovered.

This case was somewhat different from the preceding. The infiltration was much more diffused and superficial, resembling more lupus erythematosus than lupus vulgaris, while the other was more like a case of lupus vulgaris.

The marked reaction to the tuberculin injections is an important point for the diagnosis of the tuberculosis of the skin, and the result obtained under its use is a guarantee that the affection could not be from any other cause.

Prof. V. Bergmann, at the meeting of Freien Vereinigung der Chirurgen in Berlin, November, 1890, referred to a case of tubercular ulceration of the lower jaw and palate, which healed entirely after a few injections of tuberculin 0.1, 0.2. He noticed slight general but very marked local reaction on the first day.

After the tuberculin injection the tubercular nodules appeared much smaller and the ulcerations as if they had been cauterized. Dr. C. Schimmelbusch[5] stated that he could not find true necrosis in the tubercles of the skin after tuberculin injections, but the tissues showed only an inflammation and an exudation process, causing a sloughing of the ulceration.

The important feature in these last cases is the curative effect of the tuberculin; only simple vaselin dressings were applied to the local ulcerations.

I have referred to these cases, which lately came under my treatment, on account of the interest which they offer to the dermatologist. The first three cases, tuberculosis verrucosa cutis, are of scientific importance on account of the source of infection, and the course and extension of the lesions. Suppuration is the principal cause of spreading of this tuberculosis and miliary foci are formed, so that the pyogenic coçci cause the extending of these eruptions. In these forms tubercle bacilli are difficult to find and Riehl and Paltauf believed the cause of this affection to be due mostly to a mixture of the infectious germs. Nearly all cutaneous tuberculoses end with ulceration; in some, however, the ulceration is a most remarkable phenomenon, showing a tendency to proliferation.

The two last cases have more resemblance to lupus, and especially the last case can be compared with lupus tuberculosus superficialis, as described by W. Dubruille at the Society of Medicine and Surgery of Bordeaux. In these cases we find small superficial tubercular gummata, which after ulcerating have a tendency to recovery, leaving a superficial scar.

In the tuberculoses of the skin, with the exception of the tubercular ulcers, which are developed near the natural orifices in advanced consumptive patients, and which have a destructive nature, the other mentioned forms usually recover. It seems that the tubercle bacillus in the skin is somewhat modified, has not much tendency to multiply, and is not easily inoculable. The derma does not offer to this bacillus a fertile ground and its infectious properties remain limited to the skin, without showing general infectious phenomena. At times the infectious power of this germ, when encapsuled in the tissues, may remain latent for years, ready to break out at any time in the form of lupus from old scars.

In all our cases we have seen recovery of the cutaneous tubercular form. In the forms of tuberculosis verrucosa, by means of curetting, the cautery and various dressings we have obtained recovery. In the

[5] Mikroscopische Befunde der Tuberculose der Haut, und der Sichtbaren Schleimhaute nach Anwendung der Kochschen Mittels. Deutsch. Med. Woch. 1896.

two other cases, the tuberculin injections produced beneficial influence on the tubercular cutaneous forms. No other dressing was used than vaselin, and yet after several injections the ulcerations healed promptly.

I will say in conclusion, that cutaneous tuberculosis occurs not very rarely; that it is not always accompanied with general tubercular infection; that it has a tendency to recovery; that it may yield to local as well as to general treatment; that tuberculin injections for some ulcerative forms have a beneficial influence.

THREE CASES OF TUBERCULOSIS CUTIS VERRUCOSA.

Presented in the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY M. B. HARTZELL, M.D.

INSTRUCTOR IN DERMATOLOGY, UNIVERSITY OF PENNSYLVANIA.

PHILADELPHIA, PA.

Although that form of tuberculosis of the skin first described by Riehl and Paltauf, under the name of tuberculosis cutis verrucosa can no longer be regarded as a rare affection, and usually presents such well-marked and special features that its diagnosis is ordinarily made without any difficulty, I have thought that it might be of interest to report the three cases the subject of this paper, since each of them presents features, clinical and histologic, which are uncommon. The first case reported, presented in its early stages a form of cutaneous tuberculosis to which attention has not yet, so far as I am aware, been called.

Case 1.—R. L., about 40 years of age, was referred to me for advice concerning an affection of the thumb which had existed for three years, in spite of much and varied treatment. The disease consisted of an irregularly outlined, noticeably elevated, bluish-red patch, whose surface was covered with numerous small papillæ and scanty adherent grayish and brownish scales, occupying the greater part of the extensor surface of the terminal phalanx of the right thumb. This wart-like patch was surrounded by a smooth violaceous border about an eighth of an inch wide, less elevated than the patch itself. The thumb-nail was also considerably deformed, the imperfect growth of the nail being due to the manner in which the disease began, to which further reference will be made. On close examination a number of small openings could be seen between the papillæ which studded the surface, from which pressure caused a few drops of thick pus to escape; pus could also be pressed out from beneath the nail-fold at the root of the nail. The history of the malady, obtained from the patient, was as follows:

About three years previously the root of the nail became red, swollen and slightly painful, and remained so without material change for some months. Gradually the skin of the thumb became thickened, violaceous in color, and finally covered with small papillæ from between which, in places, cheesy pus could be expressed. Pain was never at any time a prominent symptom, and the patient was annoyed quite as much by the unsightly appearance of the member as by any disagreeable sensations in it. The patient's general health was far from good; he had a chronic cough, somewhat paroxysmal in character and accompanied by free expectoration; he was hoarse, and had been losing flesh for some months past. The treatment consisted in the destruction of the entire patch by means of a plaster containing 40 per cent. of pyrogallol, which was followed by an ointment of resorcin—1 to 16—until cicatrization occurred. An apparent cure was thus obtained within three or four weeks; but two months later there was a slight relapse, two split-pea-sized, brownish-red translucent nodules appearing in the cicatrix. It is of interest to note that these nodules presented the typical "apple jelly" appearance of lupus vulgaris, indicating, if this were any longer a matter of doubt, the etiologic indentity of these two clinically quite distinct forms of cutaneous tuberculosis. As to the mode of inoculation in this particular case, it was noticed that the patient was in the habit of frequently biting his thumb, unconsciously, and this habit taken in connection with the chronic cough and progressive loss of weight suggests a possible way in which the skin may have been inoculated. The chief point of interest, however, is the form which the malady assumed in its early stages. It began as a paronychia, and remained such for some months without showing any of the features characteristic of cutaneous tuberculosis. Some six months after coming under my care the nail-fold about the root of the left index finger became red, swollen and moderately painful; after a time, minute openings made their appearance in the swollen tissues, and a small quanity of thick pus escaped. This affection of the index finger did not differ in appearance from ordinary paronychia, but was absolutely uninfluenced by the treatment advised—application of mercurial ointments chiefly. The patient, who was a more than ordinarily intelligent person, declared positively, that the disease of the thumb began in a precisely similar manner. I think it is evident from this case that we must include among the manifestations of cutaneous tuberculosis a form of chronic paronychia, which in its early stages at least resembles, clinically, paronychia due to other causes.

Case 2.—T. B., 44 years of age, employed by a railway company to clean freight cars, in which live stock had been transported, came under observation in November, 1896, having upon the back of the right hand, near the metacarpo-phalangeal joint of the index finger, a circular elevated patch in which were a number of pin-head-sized openings, some of which contained small horny plugs which could be picked out with the forceps; others gave exit to a drop of pus when pressure was made upon the lesion. This patch had existed for some months, was only slightly painful, and was slowly growing larger. It had followed a slight injury to the hand received by knocking it against the end of a board while cleaning a cattle car. This trifling wound had at first promptly healed, but later became slightly painful, swollen and gradually assumed its present aspect. The patient was in excellent general health, weighing about 175 pounds, and so far as could be learned, had never been seriously ill. After his first visit the patient was not seen again for a considerable time; and upon a second later examination the patch was seen to have undergone a notable alteration in its appearance. Beside having increased in size, its surface had become verrucose, and the horny plugs spoken of had disappeared. The diagnosis of tuberculosis cutis having been made, the lesion was destroyed by the application of a strong pyrogallol plaster for ten days, a 20 per cent. resorcin plaster being afterward employed. Within one month a complete and permanent cure was obtained. The patient was seen one year later and the hand was perfectly sound; but his general health had changed very greatly for the worse. He was emaciated; had a persistent and frequent cough, accompanied by abundant expectoration; his midday temperature at the time of this examination was 101.5 F. Examination of his chest revealed decided dulness at the left apex with numerous râles.

In their paper published in 1886, Riehl and Paltauf called attention to the resemblance, in some cases, between their tuberculosis cutis verrucosa and the "*perifolliculite suppurée et conglomerée en placard*" described by Leloir; and in the case just reported the resemblance to this form of follicultis was so marked that the diagnosis was for a time in doubt. In the more recent descriptions of this form of tuberculosis by other authors, little or no mention is made of the possibility of confounding these two affections; but the resemblance may, at times, be so close as to make the possibility of error considerable. A microscopic examination of an excised portion of the patch in this case showed that the follicles were markedly involved in the morbid process, there being numerous miliary abscesses in the perifollicular parts which communicated in some cases with the follicle. The macroscopic and microscopic appearances justify the assumption that the malady began as a perifolliculitis, and later invaded the interfollicular tissues.

Case 3.—The last case I report—in some respects the most interesting of the three—is unfortunately very defective in its clinical details, since I have been able to procure but very few facts as to its history, which is as follows:

Mrs. F., aged 67, had a circular, considerably elevated, wart-like lesion, the size of a quarter, which had existed for about one year upon the flexor surface of the fore-arm, about two inches above the wrist. This, according to her statement, had begun as a small "pimple," which steadily enlarged and became covered with numerous enlarged papillæ. The entire lesion, together with a portion of the surrounding tissues, was excised and submitted to me for microscopic examination. The excised lesion presented the macroscopic appearances of a verrucose tuberculosis, but having been in alcohol for some days before coming into my hands, a positive diagnosis from the naked eye appearances was somewhat difficult. Examination

of sections showed a considerable increase in the horny layer of the epidermis, numerous plugs of cornified epithelium in the follicular ducts, enlargement of the papillæ of the corium, particularly in the longitudinal direction, and many downgrowing, branching prolongations of the interpapillary portions of the rete. In the corium were numerous areas of round and epithelioid cells with a moderate number of multinucleated giant-cells. In addition to these were many variously sized tracts of epithelial cells. In short, while there were the usual histologic features of tuberculosis of the skin, there was also the epithelial proliferation characteristic of epithelioma, so that we may conclude that we have here one of those infrequent cases in which a tuberculous lesion becomes the seat of malignant epithelial proliferation.

Marked increase of the interpapillary prolongations of the rete are common in lupus vulgaris; but in infrequent cases the tuberculous tissue or the cicatrix at the site of an old tuberculous lesion becomes the seat of actual epithelioma. Desbonnets, who has recently studied this subject, was able to collect the reports of eighty-six cases in which epithelioma occurred either in the lupus tissue itself or in the scar of lupus, but in only a single one of these cases was the verrucose form of tuberculosis cutis associated with epithelioma. According to this author this form of epithelioma may assume the vegetating or ulcerative form, and is more rapid in its progress than that occurring in non-tuberculous tissue.

In conclusion, these three cases illustrate: *a*, a form of paronychia chronic in course, tubercular in origin, terminating in a verrucose tuberculosis of the skin; *b*, the follicular origin of some of the cases of tuberculosis cutis; *c*, the concurrence of tuberculosis cutis and epithelioma.

DISCUSSION.

Dr. CAMPBELL—I saw a case of the disease which had involved the middle finger and right patella. There was no history of tubercular infection, nor were there any lung symptoms. The eruption had continued for three years. I used guaiacol with good results.

Dr. GOTTHEIL—I have noticed, in some patients, purplish patches occurring on the hands which lasted for years. Atrophy of the tissue followed, but no ulceration.

Dr. SHOEMAKER—I recall one case of tuberculosis cutis which was atypical and the diagnosis was made as the result of the condition of the internal organs. I have used tuberculin in seven cases of lupus vulgaris and no good results followed.

Dr. DUHRING—Much confusion has arisen in the writings of surgeons and dermatologists on tuberculosis of the skin. Many descriptions are vague and confounding. They have gone to extremes in their deductions and beyond the old landmarks, and since they have discovered the tubercle bacillus all cases of lesion of the skin where the micro-organism is, or thought to be found, are classed by them simply as tuberculosis cutis. The clinician, and even the pathologist, now becomes very much confused by the various pictures. The material just presented has not elucidated the question. If only 1 tubercle bacillus can be found in 200 sections, as one observer has reported, then I would doubt very much if the tubercle bacillus was the cause. I consider it a great mistake to include all the forms under tuberculosis cutis. I would divide the subject into the two usual heads and then make another class where the presence of tubercle bacilli had been demonstrated and which presented rare clinical forms. Those described this morning would belong to this latter class. Grouping all these varieties under one term, tuberculosis cutis, dispensed with any classification, so that much confusion was now arising. This question of retention of old terms does not interfere with any of the valuable additions made by pathologists, but I am opposed to doing away with valuable clinical pictures which have been used so long and are so useful for teaching purposes.

Dr. GILCHRIST—I recall two cases of pseudo-tuberculosis of the skin where the tubercle bacilli were absent, but in their place were found blastomycetes, bodies allied to yeast fungi. In the second case, pure cultures were obtained and successful inoculation in numerous animals carried out. Examinations of the tissue from all tubercular cases for blastomycetes should be made. A simple method of demonstrating the presence of these organisms is by soaking the unstained sections in liquor potassæ when the blastomycetes appear as refractive, doubly-contoured bodies, whereas the tissue becomes blurred. I do not consider any case of cutaneous disease tubercular until the presence of tubercle bacilli has been demonstrated. The best plan for detecting the presence of tubercle bacilli in lesions of the skin is by a smear taken from the lesion on a slide, then dry and stain in the usual way. There is a much better chance of finding the organism by this method than seeking for them in sections.

With reference to the variety of tubercle bacilli in tuberculosis lesions, smear preparations will probably demonstrate the presence of larger numbers. It has been lately thought that some tubercular cutaneous lesions might be due to the effect of the toxins of the tubercle bacilli and not entirely due to the presence and growth of the bacilli themselves. One authority has expressed the opinion that lupus erythematosus might be due to the toxin alone.

In numbers of cases there is a great similarity between tubercular and syphilitic lesions of the skin, and one can then only make a diagnosis by further examination for the presence or absence of tubercle bacilli. In the sections from miliary gummata the pathologic picture is very like that of a typical tubercle. With reference to tuberculin, it has been used in the Johns Hopkins Hospital with negative results.

Dr. RAVOGLI—Tuberculin was used, at first, as an aid to diagnosis, but I then noticed its good results and have continued its use.

Dr. HARTZELL—I reported the three cases because they were different from the usual type. The diagnosis of tuberculosis cutis was made, but the presence of tubercle bacilli was not demonstrated. I tried the test for blastomycetes, but they were not present, so this disease was excluded in the diagnosis. I believe in retaining the old clinical classification of tuberculosis of the skin. Lupus vulgaris represents a distinct clinical picture, but tuberculosis cutis is also a definite term.

ANGIOMATOSIS, WITH LESIONS OF THE SKIN AND MUCOUS MEMBRANE.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY J. F. SCHAMBERG, M.D.

ASSOCIATE IN DISEASES OF THE SKIN IN THE PHILADELPHIA POLYCLINIC. PHILADELPHIA, PA.

J. B., aged 80, came under observation about nine months ago. He is both physically and mentally infirm, the latter preventing me from obtaining any history concerning the duration of the lesions presently to be described. The patient sought medical aid on account of an "itching of the body."

There is great relaxation of the muscular tissues of the body, as is evidenced by the existence of ventral and inguinal herniæ. The patient has also multiple lipomata of the forearms, a pedunculated fibroma on the left thigh and numerous small vascular nævi scattered over the trunk.

The itching of which the patient complained, is the result of a discrete inflammatory papular eruption distributed extensively over the trunk and extremities. This eruption is indistinguishable from an ordinary papular eczema. Upon the inner aspects of the thighs, however, are papules of a deep red color which do not disappear upon pressure and which resemble small angiomata.

The condition of interest is situated upon the scrotum. This is the seat of numerous pin-head to split-pea-sized violaceous and bluish elevations. They are more numerous on the antero-lateral aspects of the scrotum and are arranged in a linear manner, apparently following the lines of the superficial veins. Hyperkeratosis is entirely absent, the summits of the lesions being smooth and soft. No subjective symptoms are present.

Lesions of a similar nature are present in the mouth. On the buccal mucous membrane of the left

side are numerous bluish, pin-head-sized tumors. A few small discrete lesions are present upon the right side. On the internal aspect of the left oral commissure are three purple, split-pea-sized, aggregated elevations. The inferior surface of the tongue presents a varicose appearance and is the seat of numerous lesions of the same nature as those described above. They are for the greater part studded along the outer borders of the lingual veins, which are distinctly enlarged.

Around the orifices of the duct of the sublingual gland are grouped a half dozen small angiomata.

Upon the palpebral border of the right lower eyelid is a circumscribed enlargement of capillaries resembling an angioma in course of development.

Biopsies were made upon two occasions, an inflammatory papule from the thigh and a small angioma from the mouth being excised. It was the intention of the writer to remove also a lesion from the scrotum for histologic examination. The sudden demise of the patient, however, prevented all further study of the case.

The sections were hardened in successive strengths of alcohol, imbedded in paraffin and stained with hematoxylin and eosin and picro-carmin.

The papule from the thigh exhibited under low power a moderately intense leucocytic infiltration of the papillary and subpapillary regions of the corium. The papillary blood vessels are enlarged and surrounded by a round cell infiltration. Dilated lymph spaces are present in the subpapillary layer. The epidermis appears to be normal.

The lesion from the buccal mucous membrane presents the following appearance:

The rete mucosum seems to have an unusual depth, and yet it can scarcely be said that it is hypertrophied. The epithelial layers above present no unnatural thickening. The body of the tumor is made up of loose fibrous stroma containing blood vessels. The number of blood vessels is greatly augmented and their caliber increased from two to twenty times their normal diameter. Some of these run directly upward and seem to penetrate the malpighian layer. The majority, however, slope upward to the summit of the tumor, being lost in a number of loosely arranged rete cells. In the lower part of the rete mucosum, and just above the central summit, is a large oval blood space. Arched over this is a layer of flattened, elongated cells which seem to belong higher up in the tissues.

There are no signs of inflammation.

As intimated in the title of the paper, the writer prefers the designation of "angiomatosis" rather than "multiple angioma." The former name indicates the presence of a tendency to the formation of angiomata, and this tendency was certainly manifest in the present case. Angiomata were present upon the scrotum, the conjunctival mucous membrane and in the mouth.

A cavernous angioma is always the result of a weakened condition of the vessel walls, and its formation is favored by the proximity of large veins. I saw recently similar angiomata upon the inner aspect of the foot, in a woman with marked varicose veins of the leg. Cavernous angiomata are not at all uncommon in the livers of elderly individuals. Pathologists agree in attributing this condition to varicosity of the veins of this organ.

The arterio-sclerosis accompanying senility was the primary etiologic factor in the case under consideration. The localization upon the scrotum and the inferior surface of the tongue was determined by the varicosity of these regions.

So far, scrotal angiomata have only been observed in individuals past the age of 50.

But one instance of a similar case has, to my knowledge, been published, and in that case the condition was localized to the scrotum. At a meeting of the American Dermatological Society, in 1896, Dr. Fordyce of New York read an article on "Angiokeratoma of the Scrotum." His chromo-lithograph represented a condition identical with my own case. I do not believe that the name "angiokeratoma" was justified in the above instance.

After all, angiokeratoma is merely a compound process, a super-position of keratosis upon ordinary angioma. Whenever the lesions are located upon parts where keratinization is normally active, as upon the hands, we have a hyperkeratosis. Upon other parts, no such process is superadded. Angiokeratoma is observed only upon exposed regions, and particularly the hands and feet. The etiologic factor in these cases is repeated chilblain, which serves to weaken the vessel walls by producing an arterio-sclerosis.

Angioma of the scrotum is not as rare a condition as the paucity of recorded cases would seem to indicate. Dr. Hyde of Chicago and Drs. Morrow and Klotz of New York informed me that they had each observed cases of this peculiar affection. Furthermore, as the condition is unattended by any subjective phenomena, there exist no doubt many cases that are never seen by the physician.

The conclusions to be drawn from this paper are as follows:

1. Arterio-sclerosis is a prerequisite to the formation of cavernous angiomata.
2. This condition of the vessel walls may result from senility, repeated chilblain and other causes.
3. The term angiokeratoma should be restricted to the cases in which the keratosis is a prominent feature.
4. There may exist in the aged a tendency to the formation of angiomata upon the cutaneous and mucous surfaces.

THE TONGUE AS IT INTERESTS THE DERMATOLOGIST.

Presented in the Section on Cutaneous Medicine and Surgery, at the eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY C. W. ALLEN, M.D.

Consulting Dermatologist to the Randall's Island Hospitals, the Instituto Italiano, and Holy Rosary Asylum of New York; the Hackensack and the Bayonne Hospitals of New Jersey; Consulting Genito-Urinary Surgeon to the City Hospital and Attending Surgeon (Department of the Skin) Good Samaritan Dispensary, New York.

NEW YORK, N. Y.

For a number of years I have made note in my case books of the appearances presented by the tongue in dermatologic, syphilitic and other cases, and have been impressed with the relative frequency with which this organ is involved in one way or another.

At times the tongue lesion has no connection with or bearing upon the skin affection under treatment, while at others, and habitually in syphilis, it has important bearings. The subject is so large I must content myself with generalities and general conclusions.

The statistics I present cover several series of observations made at intervals covering a period of ten

years. Thirty-nine hundred tongues were examined with the object above mentioned.

The importance of diagnosis in affections of the tongue need not be dwelt upon in addressing men who are constantly seeing the ravages produced in neglected cases of syphilis, tuberculosis and leucophakia going on to cancerous development.

The tongue has not, however, received the study its importance calls for in the more benign affections closely allied to or identical with cutaneous diseases.

The surface of the organ has such close similarity to the skin's surface that it is not a matter of surprise that analogous disease processes attack both, or that it is to the dermatologist that tongue cases are so frequently referred by general practitioners. Many skin diseases present simultaneously their effervescences upon this organ's surface, and indeed the lesions may appear here before they develop upon the skin. This is true at times of pemphigus, variola, varicella, lichen planus and syphilis.

At other times the tongue will give the cue in obscure instances.

The differential diagnosis between scarlatina and surgical scarlet or septicemia, can at times be established by the brownish or *café au lait* furring in the latter giving way to a smooth glazed surface, or one over which large rounded papillæ stand out like a bed of mushrooms.

In varicella presenting so few lesions upon the skin surface in an early stage, that diagnosis is doubtful, a group of lesions on the tongue consisting of round yellowish white, firm-looking lesions, interspersed with rounded excoriations corresponding to the vesicles whose walls have ruptured and become rubbed off, is at times so characteristic as to remove all doubt. Such a group may be found beneath the tip, in which situation I have observed a group of six separate vesicles. The fleshy-appearing papule is to my mind the characteristic feature of these tongue lesions of varicella.

In variola an early vesicle may be found upon the tongue, though more commonly in the roof of the mouth.

A vaccine vesicle has been observed upon the tongue (*Journ. C. and G. U. Diseases*, 1889, p. 359).

Vesicles are also to be observed in impetigo herpetiformis, as in Hartzell's case, reported at the last American Dermatological Association meeting; in pemphigus and in burns from taking too hot water into the mouth. These may go on to ulceration.

Herpes occurring upon the lips is accompanied at times by vesicles whose walls are naturally of short duration and the lesions are usually observed first in the stage of excoriation. It is confined almost entirely to the tip and anterior edges of the tongue, and the lesions are red, tender and slightly indurated.

The differentiation is to be made from a form of recurrent herpes in syphilitics in which the lesions are of various size and upon the dorsum as well as the edges. They occur mostly in smokers, in those taking mercury by the mouth and in whom the mouth hygiene is not good. The succeeding areas are polycyclic.

The list of skin diseases which may at times present actual lesions upon the tongue is large. Confining myself to those that I have seen or those that have been recently reported, I enumerate: Lepra, syphilis, lupus vulgaris, lupus erythematosus, lichen planus, lichen ruber, dermatitis exfoliativa, pemphigus, herpes, ringworm (Kinnear)? purpura, purpura hemorrhagica, keloid, vascular nevus, xanthoma, erysipelas, anthrax, Addison's disease, myxedema, zoster (Fournier), xeroderma pigmentosum, urticaria, eczema, eczema seborrhoicum, impetigo, filaria medinensis (Guinea worm disease), impetigo herpetiformis (Hartzell), ichthyosis? erythema multiforme (Crocker), molluscum fibrosum (Crocker), pityriasis rubra (U. S. Navy), dermatitis herpetiformis, angio-neurotic edema, one-sided swelling, keratosis follicularis (?), angioma, phthiriasis (pigmentation).

The terms ichthyosis, psoriasis, keratosis and tylosis may best be dropped in discussing and describing lingual lucoplasias.

Leucokeratosis is a term at once sufficiently comprehensive and descriptive under which the various forms of white plaques may be included, and need occasion no confusion as to the identity of a given process with any dermatosis known by the same name. Leucokeratoses especially interest the dermatologist, since their frequent occurrence in the stages consecutive to that of acute infection from lues brings up constantly the question of differential diagnosis. The importance of the latter lies in the well known frequency with which leucoplakias of benign aspect, existing for years without inconveniencing the patient, suddenly assume malignant features and necessitate amputation of the tongue, in whole or in part, to preserve life. The question of treatment in the early stages and the methods best adapted to prevent this unfortunate ending, comes up before the dermatologist for solution. I can not enter into the opposing views as to the advisability of early radical operation, or of leaving such plaques wholly without treatment and preventing so far as possible irritations which may hasten malignant degeneration. My personal experience leads me to believe that smoking, the use of alcoholics, faulty mouth hygiene and mercurials administered by the mouth play a most important rôle in the development, continuation and recurrence of luetic and paraluetic white plaques in late stages of the disease.

In the non-specific forms mild applications do harm rather than good, and such means only as will destroy the plaque *in toto* should be resorted to. At the earliest manifestation of cancerous change, excision widely beyond the clinical limits of the plaque should be performed. The signs of danger should include papillomatous outgrowths, ulceration and fissuring.

A condition of frequent occurrence in skin cases is that presenting wandering rings and plaques, best designated *exfoliatio areata linguæ*, but commonly known by the misleading name of ringworm of the tongue. While it may occur in subjects of ringworm it has no more to do with the skin affection than it has with lupus, lepra, syphilis, psoriasis, eczema, eczema seborrhoicum, keratosis pilaris, rosacea, and impetigo contagiosa, in all of which conditions I have seen it, as well as in the exanthematic fevers. Its importance is chiefly derived from the fact that Parrot taught that it was a manifestation of syphilis when seen in children. I have convinced myself, from many instances in absolutely non-specific cases, of the fallacy of this view, and I can unhesitatingly pronounce it erroneous. It is often present in several children of a family. That this geographic tongue is not universally known as it should be I may cite a recent communication to the London *Lancet*, asking the meaning of a map-like appearance of the dorsum linguæ which the writer had observed a number of times in young children.

The term glossitis often used in speaking of it is not applicable, since there is no inflammation and in

many instances absolutely no subjective sensations attending the condition unless green nuts, strong acids and the like are eaten. The yellow ring-like border may extend upon the under surface of the tongue and independent rings may here develop, contrary to the statement in books. I have seen it undergo spontaneous cure and have observed it so frequently in adults who assured me that during their whole life they had never seen it present before, that I must believe it capable of developing at any age. It is most frequent in those whose tongues are naturally fissured in many directions and of uneven surface. The statement made by authors that it is chiefly an affection of infancy is also not strictly correct, since a fairly large percentage is noted in adults.

Stomatitis aphthosa implicating the tongue interests the dermatologist, because it not infrequently happens that lesions due to the affection occur upon the skin surface about the mouth, and Hertwig has recorded an observation of the identical eruption upon the hands from drinking infected milk.

Stomatitis ulcerosa as it occurs in scorbutus and in mercurial salivation comes to, if the latter is not laid at, the door of the dermatologist and syphilographer. The conditions brought about by those and similar causes for systemic depression favor the activity of mouth organisms in an ill-directed way. The ulcer of stomatitis is irregularly rounded and grayish. Tuberculous ulcer is not, as usually stated, invariably painful.

The tongue in syphilis.—The tongue furnishes one of the most reliable means of diagnosing syphilis, past or present. The frequency of mouth lesions in all stages of syphilis is well known. To determine what this frequency is, I have taken 100 consecutive histories of syphilitic patients from my office records and find that in just 50 per cent. mouth lesions are noted. Those of the tongue are for the most part mucous patches and recurrent leucomas, but include five instances of specific leucoplakias; one of gumma of the tongue; one of exfoliative glossitis; three of fissures. In two instances there was present that peculiar wandering ringed condition which I think is best named *exfoliatio areata linguæ*, and which has nothing to do with syphilis in any except an incidental way. There exists, however, a very similar exfoliation due to syphilis, occurring as one or two smooth patches, usually upon the dorsum, in the early consecutive stage. These have no limiting yellowish ring and are stationary; last for a long time, and subsequently leucomatous plaques often occupy the areas covered by them.

The lymphatic tissue at the base of the tongue has a very decided interest to us, since it may not only undergo important changes in the early stages of lues, giving rise to hemorrhages, cough, etc., but the diagnosis of the elevated projecting teat-like follicles separated by furrows which form the "lingual tonsil" must be at times differentiated from malignant new growth and from vascular tumor which sometimes develops in this situation from angioma and varix.

Specific leucokeratoses are not always easily differentiated from non-specific. A man came to me several years ago, presenting about the center of the dorsum a rounded elevated papillary white plaque. The entire dorsum surrounding this island was red, glazed and somewhat sensitive. There was no history of syphilis, but one of a soft sore and suppurating bubo having occurred at the age of 17 years. Subsequent observation and treatment proved its specific nature. Small painless, pearly patches along the edges of the tongue are usually specific.

A beginning leucoplakia is often hard to distinguish from a condyloma or hypertrophic papular plaque.

In one instance of leucoma occupying the tip and anterior margins, extending slightly to the inferior surface, in a man who smoked about thirty cigarettes daily and who denied syphilis, I was for some time in doubt as between smoker's patch alone or smoker's patch plus lues. The general surface was smooth and grayish, but in places there were radiating whitish lines which decided me in the latter view.

The luetic plaque as well as the non-specific may degenerate into cancer, though the former more rarely does so.

The small white, rounded or oval plaques which so constantly occur in some subjects of late lues, and which are removed and prevented with such difficulty while the patient continues to smoke and drink alcoholic beverages, and even in the absence of these habits while mecurial treatment by the mouth is persisted in, I have found to be readily managed under treatment by intra-muscular injections of soluble salts of mercury. Stomatitis "luetica" is often only an evidence of a depraved state of constitution in which the active agent of lues plays little or no rôle.

Psilosis, a condition of the tongue which might readily be mistaken for syphilis, has been described by Thin as occurring in the tropics and affecting those suffering from intestinal disorders. I have seen an instance resembling it in a gentleman suffering from chronic dysentery contracted in India who came under my care upon arriving in New York. At first the lesions are much in the nature of herpes, leaving denuded areas. There are subsequently formed deep clefts and the dorsum is cut up into glazed areas.

Chancre of the tongue.—The tongue holds the third place in frequency of location of primary syphilis of the mouth. It may be single or multiple, and most commonly near the tip. It is rounded, elevated and soon becomes ulcerated, though marked induration may not occur, or the chancre may be of the erosive or fissure type. The diagnosis may have to be postponed until the consecutive roseola appears, and at times the differentiation from a mucous patch is scarcely to be made. From chancroid the diagnosis is made by the relative infrequency of the latter and by the result of inoculation.

Emery and Sabouraud have recently reported a chancroid of the point of the tongue occurring simultaneously with chancroids of the penis, having the same appearances, running the same course, giving the same inoculation results and accompanied by bubo.

The bubonic enlargement which accompanies chancre is of early development, involves several glands as a rule and does not suppurate.

Gumma is not uncommon when we take into account those nodules of small size located far back upon the dorsum which only careful inspection brings to light. The diagnosis from incipient epithelioma may be closely simulated when a single gumma has a lateral situation. Deep-seated gummous tumors within the parenchyma may have to be differentiated from abscess, foreign body, intramuscular tuberculosis, epithelioma, sarcoma, myxoma, adenoma, lipoma, fibroma, angioma and cystoma, all of which neoplasms occur in the substance of the organ. Gumma is more frequent in men than women, usually has a central situ-

ation, is accompanied by other signs, tends to ulcerate and melts away under iodid of potassium, establishing the diagnosis in a positive manner.

The intra-lingual tuberculous hard nodule always arises in the muscular, gumma in the connective, tissue. It is an earlier form than the superficial ulcerating tuberculosis.

Lichen planus is at times limited to the tongue. I have never observed an instance, but have had one case referred to me in which the only other portion of the body affected at any time before or since, so far as I know, was the glans penis. This case was very promptly cured by gradually increasing doses of arsenic, and so far as I am informed there has been no recurrence. A similar instance has since been reported by Hallopeau and Schroeder. Here, however, the buccal membrane was coincidently affected with the glans. The diagnosis rests between this disease, leucoplasia and syphilis.

The characteristic appearance is one of radiating or star-shaped lines of pearly hue, indolent and not pruritic. If lesions occur upon the tongue as they often do when the skin surface is freely covered, the diagnosis is not difficult and, as Fournier believes, the wafer-like appearance of dull white character is as characteristic as the striated plaques.

Lichen ruber.—According to Unna this is capable of producing lesions upon the tongue in the form of multiple erosions. These differed wholly from the sharply defined, white, rounded or slightly irregular spots of lichen planus.

Dermatitis exfoliativa is thought by Brocq to be accompanied by irregular white plaques due to the same general process as that affecting the skiu.

Zoster of the tongue must be regarded as a rarity. Fournier has recorded one instance.

Herpes is of common occurrence both in the acute and chronic recurrent forms. It accompanies certain instances of herpes febrilis of the lips, or occurs as an independent recurrent affection. The vesicular stage is so brief that a distinct wall is scarcely ever to be seen. A red tender round denuded spot marks the vesicle's site, and surrounding it may be an area of slight induration. The tip and edges are the parts affected.

In recurrent herpes the lesions may not be much larger than a pin's head, but a group often gives a polycyclic outline to the inflamed patch.

Pemphigus may first show itself by the occurrence of a bulla upon the tongue, and in the course of the disease tongue lesions have occasionally been observed. That the bullous wall is much less ephemeral than is usually the case with vesicles I am convinced by observing a number of times a hemorrhagic bulla with intact walls, from an unknown cause, in an old syphilitic.

Erythema exudativum multiforme.—According to Rosenbach (*Deutsche Med. Wochens.*, June 28, 1894), all local pemphigus of the tongue, so-called, is strictly speaking an erythema bullosum and is often accompanied by a similar eruption about the genitals. This combination of tongue and glans penis eruption as seen frequently in lichen planus, might lend weight to this opinion.

Probably some of the cases belong in that class of hereditary predisposition to bullous formation now so well known under Köbner's designation of *epidermolysis bullosa hereditaria.*

Lupus of the tongue alone is rare. In association with lupus of the contiguous mucous membranes and skin it is not uncommon. It occurs mostly upon the posterior portion near the epiglottis, as small isolated nodules having a soft granular surface.

When it ulcerates the tuberculous sore is simulated, but the steadily progressing ulcer is free from painful sensations. Spire reported fourteen observations upon tongue lupus (*Archives Cliniques de Bordeaux*, 1895), adding three of his own, and a number have been added since then; Audry reporting two cases, in one of which the point of the organ was alone implicated. There may occur a group of tubercles, the center being more elevated than the periphery, and surrounding this may be a somewhat raised limiting band of tissue. There is little tendency to ulceration and so little discomfort may be caused that the patient is scarcely aware of the plaque's existence.

Lupus erythematosus is more rarely seen, though its occurrence upon the lips and inner surfaces of the cheeks is not so unusual in connection with its appearance upon the face. Elliot has shown a case at the New York Dermatological Society.

The appearances upon the vermilion border of the lips is much the same as upon the skin surface, but where continually moist the appearances are more those of a diffuse marginated mucous plaque.

Impetigo contagiosa is said to occur upon the tongue. I am not sure that I have seen it, though I have recently observed an instance of exfoliatio areata in a child with impetigo of the face.

Sevestre and Gaston (*Bul. de la Soc. des Hôp.*, 1891), speak of an impetiginous stomatitis, in debilitated infants having impetigo, as well as intestinal and other disorders. The staphylococcus aureus was found in eight instances.

Purpura I have noted in a number of instances of purpura simplex and in one case of hemophilia dating from the age of 3 years.

Lepra may present tubercular lesions, fissures, groups of small papilliform tumors in rounded or oval plaques and conditions of chronic glossitis very similar to those of syphilis.

Urticaria may produce serious enlargement of the tongue. I have seen the organ so swollen in giant urticaria, following the use of some of the coal tar antipyretics, as almost to cause suffocation.

A distinct wheal upon the tongue is said by Laveran to have pointed to the correct diagnosis in an obscure suffocative affection of the throat at a time when the cutaneous surface was free.

Xeroderma pigmentosum lesions have been observed by Keating upon the tip of a child's tongue.

Xanthelasma may show one or more soft raised patches upon the tongue. The color is yellowish white, but under the microscope the appearances are said to be identical with that of disseminated skin xanthoma (*Lancet*, Feb. 7, 1874).

Keloid has been observed in subjects of cutaneous keloid. I have within the past year, seen a young woman with two rosy plaques of spontaneous keloid upon the chest, who also had a hard nodule in the substance of the tongue projecting slightly above the surface, which might well be of the same nature of growth.

Leucokeratoses.—Aside from the numerous leucomas of syphilis the dermatologist is frequently called upon to pass judgment upon a bluish-white or silvery plaque of the tongue which is not specific. If it be a beginning plaque the diagnosis is required; if of long standing advice as to removal or treatment.

The great tendency shown by the tissue of these plaques to undergo cancerous degeneration is ever to be borne in mind.

Treatment.—While it is possible for certain superficial, soft, pliable, bluish-white leucomas to disappear spontaneously or under local and constitutional treatment, the thicker and older plaques rarely if ever do so. There are those who maintain that every leucoplakia should be cured, if possible, even by surgical means if necessary, because of the danger from tongue cancer. While I am not prepared to admit that the resulting cicatrix and deformity, which may prove an object of irritation and be subject to many of the same dangers as was the original patch, is greatly to be preferred to a plaque which gives no trouble, still I am strongly of the opinion that all such tongues should be regularly inspected by a physician, and a radical operation undertaken at the first evidence of approaching danger. Perrin regards the best line of treatment in any case to be the total destruction of the white patch with the thermo-cautery or the galvano-cautery, and such a course seems to me much to be preferred to any attempt to remove the plaques by acids or other caustic applications.

[The reader showed a series of water-color drawings in illustration of certain affections mentioned.]

DISCUSSION.

Dr. GOTTHEIL—There is no account of lesions of the tongue from the dermatologic standpoint. Water-color drawings or colored sketches are very insufficient. I have made models in clay and wax of the open mouth and tongue and molded them as near nature as possible. A series of models of diseases of the tongue would be of great value.

Dr. CAMPBELL—In syphilitic lesions of the mouth, if they do not yield to the usual mode of treatment, will promptly do so to hypodermic medication. Locally I also use chromic acid from 2 up to 20 per cent. in chronic cases, and it has acted very successfully.

Dr. BULKLEY—I have used this method for years up to a 4 per cent. solution. Its application also checked mucous patches.

CASE OF PRIMARY COMBINED COLUMN DISEASE.

Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN K. MITCHELL, M.D., AND
J. H. WALLACE RHEIN, M.D.
PHILADELPHIA, PA.

The patient, A. R., a farmer, when first seen Jan. 19, 1895, was 42 years of age. He had never suffered from any serious disease, had led a moderate life and denied syphilis. His hair was almost white but his complexion clear and unwrinkled. Four months previously (September 1894), he began to be troubled by numbness in the toes and fingers, which became worse after the first of December, 1894. His condition when first examined January 19 was as follows: He complained of numbness of both legs and of the body up to the manubrium. There was a subjective sense of numbness of the left arms and in a slighter degree of the right, ill-defined, but felt to and above the elbows.

There were girdle pains in the lower abdomen, slight swaying on standing, but no staggering when walking; and a decrease of sexual desire. The knee-jerks were active, and sensation everywhere to touch, pain, heat and cold was good. There was slight pain on pressure over the third dorsal vertebra. No difficulty with the bladder or rectal sphincters was observed. By March, 1895 (under treatment with iodids, faradism and massage) the numbness had disappeared. There was still a sense of tightness about the knees and ankles. During the summer he improved very much in his general condition. In November, 1895, there was some disturbance of the bladder and rectal functions. The knee jerks, which in January had been normal or slightly increased, were now decidedly exaggerated and ankle-clonus was present on both sides. The station too was not quite so good as before. Sensation to touch was still normal in the hands and feet, and it was not until January of the next year (1896) that he began with some suddenness to grow more and more uncertain on his feet. The girdle pain increased and with a sense of tightness about the knees and ankles there was marked weakness of the lower limbs. From that time until his death there was progressive failure of motion and sensation. He was soon confined to his bed, when bed sores developed rapidly; there was bladder and rectal incontinence; he had at last vomiting whenever food was taken and finally died, much emaciated, from exhaustion. For some weeks before his death no knee jerks or clonus could be developed.

The diagnosis was made at first as congestion of the cord, with a possible indication of tabes. Upon the development of the acute symptoms this was reconsidered and the case held to have been a slight chronic myelitis, with acute inflammatory symptoms superimposed, but this opinion had again to be changed in the light of the histologic study.

Autopsy was made six and a half hours after death. The body was extremely emaciated, the abdomen distended with gas, extensive sloughing of the back and buttocks was present, and postmortem discoloration of all the dependent parts. There was moderate rigor mortis.

On removing the spinous processes, the cord-membranes were found baggy and distended with an excess of cerebro-spinal fluid. The dura was not unduly adherent to the vertebral canal. The membranes were dense on section. On cross-section the cord was gray in appearance especially in the thoracic portion. This became less marked above in the cervical region and below in the lumbar and dorsal cord. The organs displayed no evidence of general disease. The cord was hardened in Müllers fluid and stained by the Weigert-Pal and Marchi methods and with carmin. The result of the staining by the Weigert-Pal method was as follows:

Cervical enlargement.—In the direct pyramidal tracts beginning degeneration was observed in the right side a short distance from the periphery. On the opposite side the process was nearer the periphery and much more anterior. Though in extent the process was slight in degree it was well marked. Large spaces were visible where the nerve fibers had disappeared, the line between the limit of this process and the tissue which was well-stained, being quite sharp. In the antero-lateral ascending tracts a few spaces were observable anteriorly, but the remainder of these columns and especially the posterior parts were profoundly diseased. The nerve-tissue was entirely destroyed in a large area.

The anterior ground-fibers were fairly well stained, but in the crossed pyramidal and direct cerebellar tracts only occasionally were stained fibers to be seen. This change was most intense in the periphery of the cord. Adjoining the anterior portion of the posterior and the

posterior portion of the anterior horns the tissue had taken the stain well, except at the tips of the posterior horns where there remained but a few stained fibers. The process had progressed equally on both sides. In the posterior tracts not a single healthy fiber remained in the postero-median columns except at the extreme anterior part, just bordering on the posterior horns where a few scattered fibers had taken the stain.

The posterior root zone and the zone of Lissauer were free from disease. The posterior roots had escaped. The fibers of the anterior roots had stained well.

Cervical enlargement, combined sclerosis. (Weigert-Pal).

Upper dorsal cord.—The direct pyramidal tracts displayed a remarkable increase in the extent of disease. All the fibers seemed to be entirely lost. The border line between this extreme degeneration and the fairly well stained tissue was quite distinct though less sharp than in the cervical levels. There were a few spaces now visible in the part of the cord between the pyramidal and the antero-lateral ascending tracts. The process was greater in extent than in the cervical cord. There were fewer fibers that took the stains and larger empty spaces.

The columns of Goll were not so profoundly but more extensively involved than in the cervical cord. A few fibers remained which took the stain. Burdach's columns were severely affected. Large spaces were visible and much less tissue was stained than higher up. The zone of Lissauer still remained free.

Upper dorsal, combined sclerosis. (Weigert-Pal).

Lower dorsal—A few fibers in the posterior roots had disappeared. The degenerated areas in the anterior pyramidal and crossed pyramidal tracts were separated by a band of lesser degeneration which diminished in degree toward the periphery, although it remained quite intense there, and centrally, where a small number of stained fibers remained, bordering on the anterior horns. In the lateral columns the process was less pronounced immediately adjoining the posterior horns at their peripheral portion but everywhere in the antero-lateral columns there was evidence of disease.

Lower dorsal, combined sclerosis. (Weigert-Pal).

In the posterior columns only a slight band of fibers around the posterior margin of the posterior horns, was stained, except at the posterior internal root-zones which still appeared to have escaped to a moderate degree. Clarke's columns had in large part disappeared, only a few cells remaining.

Lumbar enlargement.—The change in the antero-lateral columns was now mainly limited to the crossed pyramidal tracts. Anteriorly the anterior marginal tracts of Marie were slightly diseased. The process was quite moderate, many well stained fibers remaining, and fewer spaces were discoverable.

In the posterior columns, many stained fibers were seen in Goll's columns. The stained fibers were greatest in number along the posterior commissure anteriorly and posteriorly, while centrally the degeneration was still very marked.

Burdach's columns were still involved but to a less degree. In the posterior external root-zones appeared many healthy fibers.

Sacral, combined sclerosis. (Weigert-Pal).

Sacral cord.—Remains of the disease in the lateral and posterior columns were seen. The process was least advanced at this level, the affected areas corresponding to the more intensely diseased ones above, but the change was only moderate in degree.

Marchi method; Cervical region.—Recent degeneration was present to a slight degree in the direct pyramidal tract, especially around the seat of the old sclerotic change. In the lateral tracts the degeneration was intense, mainly confined to a broad band encircling the sclerotic areas. The part around the focus of old degeneration was intensely involved.

In the posterior columns there were degenerated fibers found scattered everywhere, but the process was most intense on either side of the postero-median fissure, at the central and peripheral portions of the columns of Goll.

Middle dorsal, combined sclerosis. (Weigert-Pal).

Dorsal region.—The degeneration in the anterior pyramidal tracts was more intense and degenerated fibers were visible in greater numbers in the anterior portion of Gower's columns. In the other portions of the cord the same condition existed as above described, except that the process was more intense. A few degenerated fibers in the posterior horn which could be traced into the anterior horn were seen.

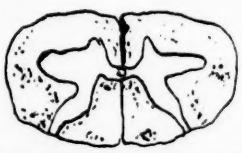
The Westphal "Wurzel-eintritt" zone was comparatively free, but a few degenerated fibers existed. In the lower dorsal region, where it will be remembered the chronic process was farthest advanced, there was a corresponding prevalence of acute degeneration.

Lumbar and sacral regions showing acute degeneration. (Marchi)

Save the postero-median root-zones, which were but slightly involved, the whole transverse section of

the cord was dotted with coagulated myelin, especially in the areas around the old degeneration. Many fibers running into the anterior horns were degenerated.

Sacral region.—The acute degeneration was much less extensive than either in the dorsal or cervical regions. The Westphal-eintritt zones were especially degenerated, the reflex collateral of Koelliker being profoundly involved. These degenerated fibers were easily traced far into the anterior horns. In the anterior part of the cord the degeneration was mostly in the periphery bordering on the antero-median fissure but scattered degenerated fibers were found everywhere. The process was quite marked in the crossed pyramidal tracts, in the posterior external columns and the central two-thirds of the postero-median columns.

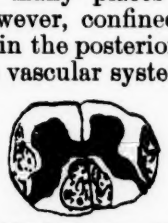


Cervical region, showing recent degeneration. (Marchi).

The posterior root-zones were diseased slightly; the anterior roots slightly involved, but the posterior roots remained free.

Carmin stain.—The pia was very much hypertrophied and contained many vessels whose walls were greatly thickened. Many of them were filled with blood cells. This change was uniform throughout the whole extent of the cord. The infoldings of the pia into the cord were more numerous than normal, and were thickened and the seat of round-celled infiltration. Numerous blood vessels, whose walls were thickened and which were filled with blood corpuscles could be observed. In the lower cervical segment this process was more intense and especially at that part around the lateral and posterior columns. The change in the pia was less pronounced in the dorsal, lumbar and sacral levels.

The branches of the anterior median artery were thickened and in many places distended. This change was not, however, confined to these arteries but could be found in the posterior median artery and indeed in the entire vascular system of the cord.



Lumbar, combined sclerosis. (Weigert-Pal).

In the direct pyramidal tracts there was an increase in the number of vessels. Some were obliterated, some had thickened walls, some seemed to be of recent formation. The signs of sclerotic change were very marked. The cord was traversed by bands of connective tissue forming trabeculæ. Of the spaces so formed, some were empty, but many were filled with compound granular cells and quite frequently with degenerated nerve-fibers. Surrounding these intensely degenerated areas were fibers showing more recent change and among them a number of healthy ones. Many were seen with enormously swollen axis cylinders with granular material around a few.

There were many areas of granular accumulations in the midst of which shriveled axis cylinders could be observed.

A similar condition was noted in the lateral tracts. In the center of the most intense change fibrous tissue and compound granular cells alone were seen, except in very rare instances when a few fairly healthy fibers persisted. Surrounding this sclerotic area there was a granular layer from which appeared to be crystalizing compound granular cells. Very few fibers were seen, those that persisted presenting some stage of degeneration. Then, receding from the center of the disease, more and more healthy fibers were visible with many granular cells, among which the blood vessels showed the same change as above described. In the white matter were found many capillaries distended with red blood cells. The ganglia cells had suffered considerable change. A number was still normal, but often the nucleus was elongated, with irregular contour and sometimes scarcely visible at all. The cell itself in such cases was rounded and shorn of its prolongations. No hemorrhage could be found. Many of the blood vessels appeared to be old and the walls thickened, with increase of nuclei, while others seemed to be of more recent origin.

In the middle dorsal region the sclerosis was more intense. The bands of fibrous tissues were thicker, the spaces larger. In other respects the change was similar to that in the cervical region, except that there were obliterated blood vessels in the midst of the intensely degenerated areas. In the gray matter there was the same vascular change as found in the cervical region, but it was more

Middle and lower thoracic regions, showing acute degeneration. (Marchi).

intense. Obliterated blood vessels were visible. The ganglion cells were more intensely affected, many of them having undergone profound alteration. It was difficult now to find a cell with prolongations persisting, or to make out the nucleus. Nearly all were rounded and had lost their characteristic shape. One cell was seen in which the nucleus had undergone vacuolization, and another where the entire cell had suffered a similar change. Some had suffered vitreous degeneration. The central canal was choked with granular cells.

The lower dorsal cord.—The gray matter had suffered intense change. There was scarcely a ganglion cell which was entirely healthy. Many capillaries were seen, all distended with red blood cells. There were still no hemorrhages visible. The lateral columns were the seat of a change similar to that described above. Bands of fibrous tissue traversed the affected area and formed spaces which were filled with granular cells. The process already described existed, but it was more intense. In the posterior columns the amount of sclerotic tissue, on the whole, was less than that which was seen in the lateral columns. In the midst of the most intense disease there was a total absence of anything resembling nerve tissue.

Lumbar cord.—The anterior portion, adjoining the median fissure showed a moderate increase in the connective tissue. In the lateral columns, correspond-

ing to the seat of change in the upper levels, there were a number of fibers in which the axis cylinders were swollen and a slight increase of connective tissue was perceptible. In the gray matter there was still evidence of considerable vascular change; numerous capillaries were seen, not more however than in any other level, while the evidence of old vascular change was less apparent. The ganglion cells were mostly exempt from disease; but a few had lost their prolongations, were rounded and exhibited an irregularity in the contour of the nucleus, and very rarely showed vacuolization.

To sum up the pathologic findings in this case, there was a sclerosis involving the direct pyramidal tracts, Gowers' columns, the crossed pyramidal and direct cerebellar tracts, the columns of Goll and Burdach, Clarke's columns, and showing involvement of the gray matter and the posterior roots; a sclerosis which was not entirely systemic, but crept over the limits of the several tracts and tended at certain levels to become quite diffuse. The degeneration was most profound in the middle and lower dorsal segments, becoming less intense in the cervical and still less in the lumbar segments.

The disease involved the lateral and posterior portions of the spinal cord to a greater degree than elsewhere. The gray matter was most severely affected in the cervical region, the posterior roots and the reflex collaterals in the lumbar region. Beside the old sclerotic change there was visible an acute process which was especially noticeable about the areas showing the most intense chronic change.

It is interesting to note that the root zones did not appear to be greatly involved in the chronic process as shown by the Pal staining. It would be difficult to explain the absence of knee jerks late in the disease on the strength of the findings shown by this method. But by the Marchi process, these zones as well as the reflex collaterals show extensive involvement, easily accounting for the final disappearance of the knee jerks.

The acute process was located around the seat of the old degeneration and extended the whole length of the cord. In the midst of the areas of advanced chronic degeneration there were seen only a few acutely degenerated fibers, but this was because but few fibers remained exempt from the chronic process. Our specimens did not bear out the diagnosis made during life but led us to consider the case as one of those which have been described by Rothman as "primary combined system disease." It is true that the disease was most intense in the dorsal region, suggesting the possibility of a chronic diffuse process in this district with resulting ascending and descending degeneration. A study, however, of the distribution of the sclerosis above, in the cervical, and below in the lumbar and sacral regions, does not disclose the presence of ascending and descending degeneration. In the upper dorsal and cervical regions the degeneration in the posterior columns was diffuse and lacked the characteristic distribution of ascending degeneration in these tracts. Moreover, the pyramidal tracts at these levels were extensively diseased. In the lumbar region the degeneration in the posterior columns was quite extensive and not limited to the areas of descending degeneration which follow transverse lesions in the dorsal cord. The distribution of the lesions corresponded quite accurately to that of primary combined sclerosis. It was most intense in the lower dorsal region; less in the cervical and least in the lumbar region. This same distribution of the disease was well illustrated in a case reported by one of us in the *Journal of Nervous and Mental Diseases*, November, 1896. In that as well as in the present case there was a small strip in the posterior columns, round the posterior horns, which had escaped degeneration at all levels. In the present case the acute process, however, had attacked this area quite intensely, especially in the dorsal cord. It is interesting to decide what significance the presence of the acute process possessed. That it had the same distribution as the old process and bordered on it so closely would suggest an intimate relation between the two—was it an acute exacerbation of a chronic process?

A review of the literature of this subject leads us to think that many of the cases described as combined sclerosis do not agree either clinically or pathologically. In some, the spastic symptoms seem to predominate—in others, the ataxic symptoms. Arnold,[1] in 1892, divided the combined scleroses into the spastic and paraplegic forms. In 1878 Westphal[2] called attention to the variability of the symptoms and conditions, which Rothman has since emphasized. Kahler and Pick[3], in 1878, were the first to observe the symptoms of combined system disease, which they described as follows: "Combined system disease in the spinal cord is one in which numerous systems are diseased at the same time and from the same cause."

Marie's[4] classification is as follows:

1. True systemic sclerosis; *a*, typical tabetic disease of the posterior columns with degeneration of the lateral columns in general paralysis; *b*, disease of Goll's and Burdach's with the cerebellar tracts.

2. Systemic sclerosis of the posterior tracts with diffuse myelitis of the lateral tracts due to leptomeningitis.

3. Diffuse myelitis with ascending and descending degeneration.

4. Diffuse myelitis of pseudo-systemic character.

Ballet and Minor[5] (*Archiv. de Neurol.*, Vol. VII, 1884) divide the combined sclerosis of lateral and posterior columns into, 1, diffuse sclerosis of pseudo-systemic character; 2, typic tabes with disease of the direct cerebellar tracts; 3, tabes with leptomeningitis, the inflammation attacking the lateral tract; 4, interstitial diffuse myelitis, particularly of the thoracic cord, with ascending and descending degeneration; 5, true combined system disease.

Rothman[6] refers to six groups of combined sclerosis: 1, Friedreich's disease; 2, cases of old tabes in which there is involvement of the lateral tracts; 3, spastic spinal paralysis with primary degeneration of the lateral tracts and secondary degeneration of the posterior columns. He cites as examples the cases of Westphal,[7] Reymond,[8] and Popoff,[9] Strümpell[10] and Dana;[11] 4, spastic spinal paralysis with disease of the pyramidal and cerebellar tracts with slight involvement of ganglion cells in the anterior horns, the posterior columns remaining normal. Minkowski's (*Deutsch. Arch. f.*

1 Arnold: Virch. Arch., 1892, p. 18.
2 Westphal: Arch. d. psychiat., 1878.
3 Kahler and Pick: Archiv für Psychiatrie, viii, 1878.
4 Marie: Lecons sur les maladies de la moëlle, Paris, 1892.
5 Ballet and Minor.
6 Rothman: Deutsch. Zeit. f. Nervenhheilk., 1895, No. 7, p. 171.
7 Westphal: Arch. de physiol. norm. et path., 1877, p. 764.
8 Reymond: Arch. de Psych., 1882.
9 Popoff: Arch. d. Neurol., 1885.
10 Strümpell: Ibid., Bd. xvii.
11 Dana: Brain, 1888.

Klin. Med., 1884) and Münzer's cases (*Wien. Klin. Woch.*, 1892), are cited as examples of this disease. Rothman believes that these cases belong to the last group, being in the early stages of the disease; 5, combined sclerosis of the lateral and posterior tracts in progressive paralysis; 6, a group which he has termed "primary combined column disease," having collected twenty-seven illustrative cases. His conclusions from the study of these are: 1, that primary combined system disease must be considered a disease by itself; 2, that clinically it is distinguished by symptoms pointing to the disease of the posterior and lateral tracts; 3, that the patellar reflexes remain either present until death or disappear in the last stages of the disease; 4, that the pupillary reaction is in almost all the cases present; 5, that usually the process first attacks the lower extremities and extends later to the upper extremities; 6, that the disease runs a moderately rapid course, extending not over three years. In the spinal cord there is degeneration of the posterior tracts, the posterior roots remaining almost always free; there is a moderate involvement of the posterior root zones and crossed pyramidal, and usually also of the direct pyramidal and direct cerebellar tracts. An irregular slight degeneration of the remaining parts of the anterior lateral tracts was present. In a great number of cases there is disease of the gray substance. The cause of the process is best found in the primary affection of the gray substance. Concussion and pernicious anemia are particularly to be thought of in the etiology, while syphilis seldom plays any part. The cases of old tabes with degeneration of the lateral tracts in the last stages and of spastic paralysis with degeneration of the crossed pyramidal tracts and secondary inflammation of the columns of Goll and the direct cerebellar tracts, are to be differentiated from this disease.

Leyden (*Zeitsch. f. klin. Med.*, 1892, p. 23) has divided chronic disease of the spinal cord as follows: 1, chronic myelitis with sclerosis of the spinal cord: *a*, circumscribed form; *b*, disseminated form; *c*, diffuse form; 2, systemic disease: *a*, tabes dorsalis; *b*, the spinal form of progressive muscular atrophy and bulbar paralysis (type-Aran-Duchenne); 3; Friedreich's disease; and 4, syringomyelia.

We are inclined to believe that the cases diagnosed as chronic myelitis are often, if not always, examples of combined system disease, as Oppenheim[12] claimed. It was his belief that many of the cases reported as myelitis by Leyden must now be considered as cases of combined sclerosis.

The change in the spinal cord in our case, demonstrated by the carmin sections, showed enormous involvement everywhere of the blood vessels, especially in the gray matter. It will be remembered that the blood vessel walls were thickened; in some the lumen was obliterated, and in places there were numerous capillaries of recent formation. There was also some round-celled infiltration in the membrane and gray matter, though this was not very marked. In many places the appearance suggested an inflammatory change. There was, besides degeneration of the nerve tissue, increase in the connective tisue. We believe the process was vascular in origin, thus agreeing with the opinion of Ballet, Minor and Marie, and contrary to the opinion of Rothman, who argued that the primary seat of the disease was in the ganglion cells of the anterior horns. The process seems to be a rapid one. According to Rothman, the duration of the disease is never over three years. In the case reported in the *Journal of Nervous and Mental Diseases*, above referred to, the patient died three years after the onset of the disease, and in the present case the duration was a little over two years.

The possibility occurs to us that the cases collected by Rothman, those described by Gowers[13] as ataxic paraplegia; a small group of cases reported by Westphal, Reymond, Popoff and Strümpell in which first the lateral and secondly the posterior columns appeared involved, belong to the same class of spinal degeneration. On the other hand, Gowers claims that both the nerve elements and interstitial tissue may be involved, and that when the process extends beyond the tracts especially diseased, and symptoms such as girdle pains and loss of sensation are present, the cases should be classed as examples of chronic myelitis.

[12] Oppenheim: Berliner Klin. Wochensch., 1891, p. 761.

GASTROSTOMY—PRESENTATION OF ILLUSTRATIVE CASE.

Read before the Illinois State Medical Society, held at East St. Louis, May 19-20, 1897.

BY J. A. BAUGHMAN, M.D.
NEOGA, ILL.

Mrs. R. E., 20 years of age, in August, 1895, swallowed an indefinite quantity of a solution of potassium hydrate, commonly known as concentrated lye, of uncertain strength. Whether any of the chemical reached the stomach is not known, but its escharotic effect was markedly exerted in the esophagus. I did not see the case for some weeks after the accident and am unable to say what, if any, constitutional effects the drug produced. The attending physician treated the case by quieting pain, giving demulcent drinks and liquid food. No attempt was made to preserve the lumen of the esophagus by the systematic passage of bougies during the time cicatricial contraction was taking place. While such a procedure is advocated in many of our text-books it is of doubtful utility; for gradually and persistently stenosis and atresia succeed each other.

In December, 1895 the case was referred to me, as one of stenosis of the esophagus with threatened starvation. What would be more natural than to attempt the passage of an esophageal dilator. I could pass it no further than ten inches below the edge of the superior incisor teeth. I tried bougies and tubes of different caliber and rigidity without avail, as we sometimes do in urethral stricture. I tried the insertion of two instruments at the same time, thinking one might occupy a false pocket, thus giving direction to the other through the stricture. Foiled in this I used some degree of force with the instrument. I had no way of measuring the degree of pressure, simply trusting to touch and judgment; but in traumatic contraction of the esophagus the walls of the organ are greatly thickened and there is much less liability of rupturing it than in cancerous contraction, the most common form of stricture in this locality. The close relation of the esophagus with important organs would make perforation of its walls an extremely dangerous accident. I despaired in opening the canal, and had I succeeded in passing a bougie, it is very doubtful if dilatation would have accomplished any permanent benefit.

[13] Gowers: Diseases of the Nervous System, 1892.

My patient was rapidly starving. I explained gastrostomy to her. This operation was first performed by Sédillot forty-eight years ago, but the first success was scored by Sidney Jones, of England, as late as 1874. My patient submitted to operation in January 1896.

In cases of this kind, where stenosis is due to an escharotic, an operation, if not a duty, is much more commendable than in cancerous stricture, and even in malignant contraction I believe the operation should be done.

I performed gastrostomy by the method known as Von Hacker's, by some authors credited to Howse. This method consists of making the opening in the abdominal wall at a point about three inches below the ensiform cartilage and a little to the left of the median line. The incision in the skin was two and a half inches and that through the peritoneum one and a half inches long and almost vertical in direction.

The two principal reasons for selecting this point for the opening, are its relation to the stomach and that we may go through the body of the rectus abdominis muscle, hoping to utilize the muscular fibers of this body as a sphincter to our artificial os. In my case I was compelled to go a little lower than desirable on account of the liver and a transverse tendinous intersection in the muscle that would have afforded very few muscular fibers.

The transverse colon first presented, this was pushed down, the stomach was seized with forceps, drawn into the wound in such a manner as to avoid tension at the cardiac and pyloric ends. It was found very clean and empty and somewhat contracted. A hairlip pin was passed through the upper fold of the organ both to hold it and serve as a guide in making the gastric incision a day or two later. This pin is a very valuable part of the operation for the reason that in a few hours the wall of the stomach and the whole bottom of the wound lose all their former appearance, only showing a mass of lymph and other inflammatory products that are very confusing. The peritoneal surfaces of the stomach and abdominal wall were sewn together with a continuous silk suture. I consider this a mistake as it is next to impossible to remove the thread a few days later, so completely is it buried and held by the exuded lymph. An interrupted suture with long free ends or an absorbable animal suture would be greatly preferable.

The suture was passed through only the serous and muscular coats of the stomach and an area of the sac about the size of the thumb nail left exposed. The opening into the stomach was made three days after the primary operation. This is easily and painlessly done by first dropping a few minims of a solution of cocain into the bottom of the wound and then, in about five minutes, with an ordinary cataract knife cutting out the hair-lip pin which was previously passed entirely through the wall of the stomach. Deferring the secondary operation was for the purpose of admitting of the formation of inflammatory adhesions between the stomach and abdominal wall at the seat of the operation, thus isolating the gastric opening from the general peritoneal cavity and preventing leakage into the latter. Statistics show that the operation in two steps, thirty-six to seventy-two hours apart, is a great advantage in avoiding peritonitis and death. The patient's recovery was uneventful. There was no elevation of temperature during convalescence.

Our first method of introducing food into the stomach was by the introduction into the fistula of a soft catheter. To the patient this method of feeding was very unsatisfactory on account of the pain produced when inserting the instrument. She insisted that the tube be left in the opening from one feeding to another; and being a person of strong will she had much her own way about it.

I then had made for her a tube of sterling silver about an inch long and three-eighths of an inch in diameter with a retaining flange on one end and a cap or lid on the other. This tube was inserted and retained by the flange on the other end and elastic belt.

I have tried many times to open the esophagus, both from below through the gastric fistula and from above, but have long since ceased my attempts, as we now have a complete atresia of the esophagus under the middle of the sternum, not a drop of fluid having passed through the esophagus for sixteen months. With an ordinary bicycle pump we constructed a good strong syringe and with this she forces custards, mashed potatoes, crushed fruits, etc., into the stomach and keeps herself nourished well enough to be able to suckle a robust baby, to which she gave birth about eleven months after the operation. The patient goes about her household duties and shopping much as she did prior to the injury.

I can not defend leaving the tube permanently in the opening with any good reason, except that the patient demands it. I am perfectly aware that the instrument is liable to cause atrophy of the tissues in juxtaposition to it, and possibly an ulceration of the stomach; but as there are two parties concerned in the matter so are there two opinions to be respected.

Thus far there has been very little leakage of the gastric juice and very little irritation of the margins of the opening. If there were soreness alkalin washes and stable unguents would be in order.

I believe if I had another case to operate upon I would adopt a different method. While this has so far been practically a success, theoretically we reason that a valve method, such for example as practiced by Albert, would be better. Yet in cases where we hope to subsequently do retrograde dilitation, the mode selected in this case is no doubt the best.

I have been very anxious that my patient masticate her food and economize the saliva, but in the last year she has practically had no saliva in the stomach. Chewing the food causes a distressing spasm of the pharyngeal muscles and she absolutely refuses to try mastication. To check the secretion of saliva she has constantly taken belladonna. The size of the dose does not need to be increased. She has consumed about a pound of the fluid extract within the last year. Our text-books teach that an absence of saliva in the process of digestion and nutrition can not long be endured. So far my case does not verify this statement, yet I have apprehensions of trouble in the future.

NOTE.—April 5, 1898.—There has been no material change in the case since this report was given.

The Watch-Spring and the Gigli Wire Saw.—Watch-springs have an eye in the outer end, and their extreme flexibility, without lateral motion, adapts them ideally for a carrier of the wire saw, Lauenstein asserts in the *Cbl. f. Chir.*, February 26; *vide* JOURNAL, March 5, page 558.

ANTITOXINS.

Read before the Michigan Academy of Science at Ann Arbor, Mich., April, 1, 1897.

BY E. MARK HOUGHTON, M.D.
DETROIT, MICH.

As we note the army of workers in the field of bacteriology, and the vast amount written on the subject, we can hardly realize that it has been scarcely twenty years since the germ was first demonstrated as the cause of a disease, and less than three years since Behring and Roux published perfected methods for preparing and administering diphtheria antitoxin. During this short period of discovery, recognized but unexplained truths have been elucidated, and many new facts have been brought to light. Many of the facts of immunity have been known since prehistoric ages, but prevailing theories regarding these questions were at fault; consequently, clinical interpretations and treatment have been fallacious.

Before studying the antitoxins, it will be well to take a brief historical survey of the knowledge already acquired regarding the facts of immunity and the theories put forth to explain these facts. Pasteur in 1880 began his studies on chicken cholera, and reached the conclusion that it would be possible by a process of vaccination, "for man to eradicate every contagious disease from off the face of the earth," and, from his researches, he formulated the theory, that where a susceptible animal was treated with attenuated cultures, something which was necessary for the development of the disease germ in the animal body was destroyed. The exhaustion theory, as the hypothesis of Pasteur was called, almost as soon as announced, was disputed by Chauveau, who believed that bacteria ceased to grow, and finally died in culture flasks, and that men and animals recovered from bacterial infection when the excretory products of the disease germs had accumulated in sufficient quantities to destroy the invading microbes, in the same manner as higher plants and animals are destroyed by their own excreta. Immunity, it was explained, was due to the very slow elimination of these bacterial products from the organism of the subject. This theory was accepted by Koch to explain the curative results of tuberculin. Klebs and others endeavored to find similar remedies for other of the infectious diseases, but today we repudiate the explanation although the facts hold true. These investigations paved the way for the discovery by Behring and Roux, that something is formed by the tissues of the animal body, which enables the animal to withstand the invasion of pathogenic bacteria, or destroys them after they have gained an entrance; and that the immunity of one animal can be borrowed and conferred upon another. The scientific world was awakened; more light was needed; the dawn of a new era in medicine showed forth; ideas and experiments took a more definite form; new facts opened the way for long series of discoveries. Ehrlich succeeded in immunizing animals against the most potent vegetable poisons, and in obtaining from the blood of the treated animals a protecting substance, which, when administered to other animals, protected them against harm from many times the fatal dose of the poisons; he also devised a method for quantitatively estimating the value of the protecting substance. The commonly observed fact that nursing babes are much less susceptible to microbic disease than are bottle-fed infants was satisfactorily accounted for when it was found that the young of animals immune to a certain disease were much less susceptible to that disease than the young of unprotected animals, and many of the common facts of natural and acquired immunity were satisfactorily explained.

The crisis of the revolt against old ideas occurred, when in August 1894, at the World's Congress of Hygiene, at Buda-Pesth, Behring and Roux convinced many a doubting Thomas, that diphtheria antitoxin was nature's remedy for treating that dread disease. In the two years and over that have elapsed since then the field has been broadened, the army of workers has greatly multiplied, exhaustive researches have been undertaken and accomplished, new antitoxins have been discovered and much capital has been enlisted to supply these remedies at a reasonable price. With the exception of anti-diphtheritic serum, and perhaps one or two others, all this class of remedies yet remain in the experimental stage. Probably many of them will be greatly modified, and some rejected, before medical opinion becomes settled as to the value and limitations of serum therapy. Definite conclusions can not yet be drawn from the immense amount of experimental evidence, often conflicting which has already been submitted regarding the exact chemic nature of the bacterial and other products employed in treating animals, the resulting antitoxins, and the biologic factors concerned.

We will review the various antitoxins, calling attention to some of the salient points connected with their production.

Anti-diphtheritic serum.—Since this antitoxin is of chief importance, and will serve as a type of the methods of producing the others, a somewhat detailed description will be given.

To Klebs belongs the honor of first pointing out the specific germ of diphtheria. Löffler soon confirmed his work, and concluded that this specific germ was always present in true cases of diphtheria.

Many of the most important boards of health in this country and in foreign lands are now taking the results of bacteriologic examination, as the main criterion in deciding whether a given case of sore throat is diphtheria. Even the smaller towns and country hamlets are asking for assistance. Sooner or later every physician, who claims to be up with the times, will be obliged to know how to make bacteriologic examinations, not only of diphtheria but of many other diseases.

In preparing the serum it is of paramount importance to have virulent cultures from which to obtain the toxins to be used in the immunizing process. Most of the cultures grown from specimens taken from the throats of patients are mixed with other forms of bacteria and must be purified by appropriate methods. When pure, or when properly purified, these cultures must be tested for virulency on the guinea pig; if they prove rapidly fatal to these animals when injected in small quantities it will not be necessary to exalt their virulency by passing them through a series of animals, as must be done when the toxic properties of the cultures are very slight. It has been found that the best methods of keeping the cultures in a high state of cultivation is to transplant them daily into fresh bouillon possessing an exact degree of alkalinity. In this way very luxuriant cultures are obtained, which remain virulent for many months. The tested and approved pure cultures of bacteria are planted in large flasks of beef bouillon, which are placed in the incubator and allowed to remain about

seven days, when they are taken out and examined microscopically to make sure that no foreign bacteria are present; then a small per cent. of carbolic acid, or trikresol, is added to prevent the development of other germs which have accidentally gained access to the flask. The approved culture is finally filtered with strong pressure through sterilized porcelain filters, which take out all bacteria present, leaving a clear brown, or straw-colored (depending on the color of the bouillon used) transparent fluid, which is called diphtheria toxin; the specific poison of the germ, however, represents but a very minute portion of this fluid, which contains approximately 98 per cent. water, besides salts, peptones, etc. The virulency of this toxin must be determined before it is used to immunize the horses. Its poisonous properties may be so great that 1/50 to 1/10 of a drop will suffice to kill a half-grown guinea pig. Indeed, not long since, a healthy 1200 pound horse under the writer's care died with the symptoms of diphtheritic paralysis from the effects of an initial injection of only two drops of the fluid. Two years ago it was only possible to produce after many months a toxin 1/50 as strong as can be produced in one week's time at present. Park and Williams find that this difference in the strength of toxins is due to the difference in the alkalinity of the bouillon in which the germs are grown. They recommend that the bouillon should be so thoroughly alkaline as to require 7 c.c. normal acid to the liter to make it neutral to litmus. Phenolphthalein is, however, a much more reliable indicator than litmus for making the titrations.

The greatest care should be exercised in selecting the horses that are to be immunized. Only young, healthy animals should be used and be carefully inspected by a competent veterinarian, tested for tuberculosis and glanders, and kept under observation for several days before they are accepted.

Many methods have been employed, at the suggestion of different investigators, for producing immunity in these animals.

Behring and Roux both use practically the same method—the one generally employed at the present time. Small initial subcutaneous injections of the toxin are made; 1/10 c.c. of the strong toxin now in use diluted with sterile physiologic saline solution to 1 c.c. is quite sufficient. The degree of reaction is very variable in different horses. Some will show almost no local or general reaction, while others in apparently as good condition are rapidly prostrated with even the smallest injections. The temperature may be 5 or even 6 degrees above normal and marked local swelling occur. In the writer's experience, if the temperature rises more than 4.5 degrees the horse will surely die, either from the primary injection or subsequently if treated farther, unless antitoxin is administered. This fact suggested to me the possibility of producing immunity in such animals by combating the marked symptoms with injections of antitoxin. Pawlowsky and Maksuton report, since my experiments began, that they have succeeded in immunizing horses in forty to fifty days by first treating them with antitoxin and then with toxin. It is too early to say what the outcome of my experiments will be, but I have been able to save the lives of several animals with antitoxin and they are now standing the treatment with the toxins very satisfactorily. The great difference in reaction to the toxin on the part of different horses has been shown by Bolton to be probably due to the fact that the blood serum of some unimmunized horses contains antitoxic substances. Among other animals a similar variation in resistance to other poisons is observed. The intravenous method of injecting the toxin has been employed quite extensively, with varying results. The local and general disturbance, contrary to what might be expected, is much slighter when the toxin is introduced directly into the circulation than when injected subcutaneously.

Klein found that by beginning with a small injection of attenuated culture of diphtheria germs and gradually increasing the quantity and virulency of the germs at the subsequent injections, the animal is able to take large quantities of the most virulent cultures in three or four weeks time. This method of producing immunity is quicker and less dangerous to the horses than the method of Behring, but it has been found impossible, thereby, to produce a very strong serum, even after long continued treatment.

Wassermann has recently shown that if an animal be immunized with virulent cultures of bacillus pyocyaneus its blood will acquire strong bactericidal but weak antitoxic properties. On the other hand, if the animal be immunized with the toxins instead of with the germs the resulting serum has both germicidal and antitoxic properties in marked degree.

By all of these methods strong immunity can be produced. It may be that a combination of methods will be found ultimately to be more satisfactory than any one method alone. Horses, as human beings, have their own individual characteristics, that must be taken into consideration in order that the best results may be produced. Occasionally a horse will, while under treatment, show all the typical symptoms of post-diphtheritic paralysis, some even regurgitate their food. Such cases recover very slowly, or may suddenly die of heart failure, as do so many human patients. The horses that do take the treatment satisfactorily become sleek and well nourished. One horse under the writer's care gained over 300 pounds while under treatment. Exercise, sunshine and fresh air—in fact the best hygienic conditions—are all essential factors.

The amount of toxin and the length of treatment necessary to immunize animals so they will produce antitoxins of a given strength vary within wide limits. Some horses will produce a strong antitoxin for a time, and then, notwithstanding the fact that we can inject very large and increasing quantities of toxin, the serum will become much weaker. To illustrate: one horse under my observation shows very little disturbance from an injection of 1200 c.c. of a strong toxin, enough to kill several thousand unimmunized horses, yet its serum is not over one-half as strong as it was a year ago, and not nearly so strong as the serum obtained from a horse which shows marked reaction after much smaller doses. Behring has noted that a horse in the course of treatment may become highly susceptible to the toxin and yet produce very strong serum. The variabilities and difficulties connected with the production of antitoxin are well-nigh distracting.

After the animals have been treated for a considerable time, and are able to resist large quantities of the toxins, test quantities of blood are drawn from the jugular vein, under aseptic and antiseptic conditions, into sterilized flasks, or tubes, and placed in the refrigerator. After some hours the clot contracts and squeezes out the clear, straw-colored serum,

which contains the antitoxin. This serum is drawn from the flasks, or tubes, into a sterilized container, some preservative, trikresol, camphor, carbolic acid, etc., added, allowed to stand some time, and is then passed through sterilized filters into sterilized containers.

The antitoxic value of the serum must now be determined, before it is finally filled into the bottles, or bulbs, and finished for marketing. Several methods of standardizing the serum have been proposed, but that of Behring and Ehrlich has been most generally accepted in this country. It is carried out as follows:

Half-grown guinea pigs are the animals employed. Ten times the fatal dose of diphtheria toxin is mixed with variable quantities of the serum containing the antitoxin, then injected subcutaneously into the animals. To illustrate: Suppose we find that 5 milligrammes of a given toxin is the fatal dose for the test animals; in testing, 50 milligrammes of the toxin are measured out, mixed with, say, 1 milligramme of the serum containing the antitoxin, and injected into pig No. 1. Pig No. 2 receives a like amount of the toxin, mixed with $\frac{1}{2}$ milligramme of the serum. After a few days we find that pig No. 1 is well and healthy, in fact has never been sick, while pig No. 2 died in forty-eight hours. We would say that 1 milligramme of the serum, $\frac{1}{1000}$ c.c., is sufficient to protect a guinea pig against 50 milligrammes of toxin ($\frac{1}{2000}$ c.c.) and that each cubic centimeter of the serum contains 100 antitoxic units—an antitoxic unit being ten times the quantity of serum necessary to protect a medium-sized pig against ten times the fatal dose of diphtheria toxin. The definition of what constitutes an antitoxic unit has been so differently stated by medical writers that much confusion has arisen as to what is meant by so many units strength. Two years ago the strongest serums on the market contained only about 100 units per c.c. At the present time we are able to make serums five times as strong.

Finally, the completed and tested antitoxin is filled into sterilized containers, and is ready for distribution. Some firms prefer to put up several grades of serum, using containers holding from 2 to 20 c.c. of fluid, Others believe it is better to keep the average dose as small as possible, and list the number of units, irrespective of the amount of fluid, never allowing the latter to exceed 5 c.c.

The question is often asked, "How long will serum keep?" If properly prepared it should keep indefinitely, in the sense of putrefying; but undoubtedly, like other complex albuminous bodies, it begins to deteriorate, or lose strength, as soon as prepared. This loss in strength, however, takes place very slowly when the serum is kept in a cool, dark place. Manufacturers generally add sufficient excess of serum so that the package will contain the number of units claimed on the label at the end of six months.

Vaccine.—Vaccine, not because of its time-honored place as a prophylactic agent against smallpox, but because of the recent work of Beclère and others, deserves mention. Some time after the pustules have disappeared from vaccinated heifers their serum shows decided immunizing properties, proved by the fact that when it is injected into fresh animals and vaccination immediately performed, fewer pustules develop, those that do appear are rudimentary or abortive, and the lymph obtained is very inactive. If, on the other hand, vaccine virus is injected subcutaneously into the animal just before vaccination, the vaccine lesions remain unmodified. However, if the injections of vaccine lymph precede the vaccination several days, slight immunity is conferred. If the serum is injected within forty-eight hours after the vaccination, little or no reaction is manifest. Consequently we may say that the serum, in contrast with the lymph, possesses not only an immunizing property, but a curative one also. Whether the serum from vaccinated animals will be of value as a preventive, or in the treatment of smallpox, remains yet to be demonstrated.

Anti-venomous serum.—Sewall (1887) succeeded in immunizing pigeons against rattlesnake poison by administering gradually increasing quantities of the venom, so that finally the birds could withstand seven times the fatal dose. This immunity lasted for several months.

Fraser (1895) found, from very extended experiments with venom from the cobra, rattlesnake, and many other poisonous snakes, that animals immunized against one venom were immunized against the other venoms also—that neither local nor general reaction follow inoculation with many times the fatal dose. Some of the animals gained in flesh and seemed benefited by the treatment. Calmette and his coworkers in the Pasteur Institute confirm Fraser's work, and have added many new facts bearing on the question. The protection of man from the bites of serpents, by artificial treatment with their poison, has been known and practiced for ages, by the snake charmers of India. How well they have kept their secret need not be told. The importance of this work can be appreciated from the fact that reports show that every year over 20,000 people die, in India alone, from the bites of venomous snakes.

Abrin and ricin antitoxin.—Ehrlich succeeded (1891) in immunizing, and obtained a strong antitoxin by feeding larger and larger doses of the poisons, ricin (from the castor bean) and abrin (jequirity bean). These antitoxins are specific in the true sense, since the one antitoxin does not protect an animal from the poisonous effects of the other. These results are of great importance from a scientific point of view, but of little practical importancce to the physician, although the abrin poison may be of some use to ophthalmologists.

Calmette, in concluding his recent researches on toxins not containing microbes, abrin, ricin, snake venom, etc., says: "The antitoxic function is independent of immunity, since it can exist, although the antitoxic function does not manifest itself. The hen and the tortoise resist large doses of these poisons, but their serum is entirely inactive against abrin poison. Natural and acquired immunity are the result of a special property of the cell."

Anti-tetanic serum (lockjaw).—Kitasato (1889) showed that tetanus was due to a special germ, which, if injected into susceptible animals produced typical symptoms of tetanus; this germ could be obtained from the body of a person dying from the disease. Shortly afterward he succeeded in immunizing rabbits, whose blood serum was found to contain antitoxic substances. These results were confirmed by Tizzoni and Cattani in 1891. Behring and others, in 1892, detailed a method for immunizing horses and obtaining their serum, which was used experimentally on man. The same year Brieger and Ehrlich immunized

goats and found that the protecting substance was present, not only in the blood of the animal but also in its milk. Later he obtained the antitoxin in an impure form as a dry powder from the milk The potency of the poison of this germ, even in an impure form, can be scarcely realized, a few grains being sufficient to exterminate a whole army of men. Of the greatest importance to the physician was the demonstration that it requires thousands of times as much antitoxin to cure an animal, after the symptoms have developed, as it does to prevent the development of the disease by giving antitoxin soon after the animal is infected; hence the necessity of prophylactic injections in cases of suspicious wounds. This serum is dispensed as a fluid, or in a dry form.

Anti-tubercle serum.—This serum is prepared in the usual way, from the blood of horses that have been immunized against attenuated cultures of the tubercle germ, or their poisonous product (tuberculin). Maragliano and Paquin have made considerable claims for this serum as a curative agent, but at present I believe it should be regarded merely as an experimental remedy.

Anti-streptococcic serum.—It is now generally assumed that erysipelas, puerperal fever, and certain septicemias are due to streptococci of the same or closely related species, and that these germs often attack the weakened tissues and complicate such diseases as scarlatina, diphtheria, tuberculosis, etc. It was early perceived that a serum efficacious against these germs, or their toxins, would have a wide field of usefulness. Marmorek first succeeded in producing such a serum, but his results thus far have not been confirmed, either in this country or in Europe. However, there is quite a demand for the preparation in this country; whether it will prove of value remains to be determined.

Anti-typhoid serum has been prepared, but thus far the results are not very satisfactory.

Anti-bubonic serum is perhaps the latest and most important addition to serum therapy. The results obtained by Kitasato, Yersin and others from the use of this serum are very encouraging. It is prepared from the blood of horses immunized by some one of the methods already mentioned.

Anti-syphilitic serum has been tried, but at present the prospects of success are very meagre.

Anti-rabic, anti-choleric, and other serums have been prepared, but it is not necessary to mention them here, since they are prepared along the same general lines as the others.

We find, briefly, that immunity can be conferred against a great variety of substances of animal, vegetable and bacterial origin. This immunity may be produced by feeding the poison, or by injecting it subcutaneously or intra-venously; it can be borrowed from one animal and loaned to another to aid the tissues in their efforts to prevent the entrance of disease organisms, or to destroy such organisms after they have gained access to the citadel of life. The immunizing substance is found to be present in varying quantities in the different fluids and organs of the animal body. At present we are unable to say where this protecting substance is formed in the animal body. Much of the recent work shows that the white corpuscles have much to do with its production. One of the latest investigators asserts that he has evidence that it is formed in the marrow of the bones.

The great practical importance of antitoxins in the treatment of disease justify the conclusion that rational medicine may justly claim to be one of the most progressive of the sciences.

A METHOD FOR THE QUANTITATIVE ESTIMATION OF INDICAN AND INDIRUBIN IN THE URINE.

BY H. RICHARDSON, M.D.
CLINICAL PATHOLOGIST MOUNT HOPE RETREAT, MARYLAND.
AND E. L. WHITNEY, M.D.
DEMONSTRATOR OF CLINICAL PATHOLOGY AT THE BALTIMORE MEDICAL COLLEGE,
BALTIMORE, MD.

The methods in general use for the detection of indican in the urine are too well known to require recapitulation; they are qualitative and are of little or no value for clinical diagnosis; all are based on the breaking up of the indoxyl sulphate with hydrochloric acid, oxidizing the indoxyl into indigo, dissolving in chloroform, when the blue coloration obtained is utilized to estimate the excess. Errors arise in this method from a variety of causes. If the total quantity of urine passed in the twenty-four hours is small, a deep coloration may be obtained in the test tube, while the total amount may be normal; on the other hand, if the quantity for twenty-four hours is large, little or no coloration may be obtained, and yet the total quantity may be in excess of normal. Another point is the varying difficulty of breaking up the indoxyl; sometimes the mere addition of hydrochloric acid may produce a coloration, at others the color will only appear after standing some time. The various oxidizing agents used, viz., sodium or calcium hypochlorite, hydrogen dioxid, potassium permanganate, etc., will give different results with the same urine. If iodin or salicylic is present, the results are unreliable.

The quantitative estimation by the method of color comparison must necessarily be inaccurate, as no two observers see shades alike, and even the same observer will not always arrive at the same result. Again it is very difficult to oxidize to the exact point, any excess of the reagent bleaching the indigo.

It is evident that if the determination of indican is to be of any use in clinical diagnosis, a more accurate method is required.

The writer's method is based on the precipitation of indigotin by boiling the urine with hydrochloric acid and ferric chlorid, filtering and estimating the nitrogen in the precipitate.

Method.—The urine should first be filtered to remove any mucus that may be present, and if the specimen contains albumin it must also be removed.

Take 500 c.c. of the filtered urine, add excess of hydrochloric acid and ferric chlorid, boil for one hour, cool, filter (preferably with a suction pump), wash well with boiling water, and estimate the nitrogen in the precipitate by the Kyeldahl method. The nitrogen multiplied by 17.9285 will give the amount of potassium indoxyl sulphate, and the nitrogen multiplied by 7.0 will give the amount of sulphuric acid in combination as indoxyl. As indoxyl is often present, not in combination with sulphuric acid, the latter figure is not reliable. If it should be desired to estimate the indirubin separately, the precipitate should be washed with 97 per cent. alcohol, which will dissolve out the indirubin. The alcoholic solution of indirubin is evaporated and the nitrogen estimated by the usual method.

The following are a few results obtained by the authors:

Case of Chronic Mania.—Total quantity of urine passed in twenty-four hours, 1900 c.cm.; specific gravity, 1015; sulphuric acid in conjugate sulphates, 0.1008 per cent.; indican, 0.0125 per cent.; sulphuric acid in indoxyl, 0.0049 per cent. This specimen showed no reaction by the ordinary test.

Case of Melancholia Attonita.—Total quantity of urine in twenty-four hours, 900 c.cm.; specific gravity, 1025; sulphuric acid in conjugate sulphates, 0.0336 per cent.; indican, 0.027609 per cent.; sulphuric acid in indoxyl, 0.01078 per cent. This specimen showed a marked excess by the ordinary test.

Case of Morphin Habit (Convalescent).—Total quantity of urine in twenty-four hours, 1400 c.cm.; specific gravity, 1028; sulphuric acid in conjugate sulphates, 0.042 per cent.; indican, 0.02886 and indirubin 0.01505 per cent., total, 0.04391 per cent.; sulphuric acid in indican, 0.01127 per cent., and in indirubin, 0.00588, total, 0.01715 per cent.

Case of Gastric Cancer.—Total quantity of urine in twenty-four hours, 480 c.cm.; specific gravity, 1018; indican, 0.03513 per cent. Qualitative test showed very marked excess.

The normal amount of indican eliminated in the twenty-four hours is variously given by different writers. Dr. Charles Simon of Baltimore gives 0.0066 as normal, while Allen gives 0.004 to 0.019. As these quantities have been estimated by the color method they are probably below the normal amount, the author's analyses showing that even where no coloration was given by the qualitative test there was a total elimination of 0.0125 per cent., equal to 0.2365 cubic centimeters in the twenty-four hours.

The proportion of indoxyl to the total quantity of conjugate sulphates may, after a sufficient number of estimations have been collected and compared, be of great diagnostic value in gastric and intestinal diseases.

NOTE ON DRY CALCIUM SULPHYDRATE AS A DEPILATORY.

Presented to the Section on Cutaneous Medicine and Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY ALEMBERT W. BRAYTON, M.D.
INDIANAPOLIS, IND.

Calcium sulphydrate can be made by heating a granulated mixture of plaster-of-paris (calcium sulphate) with granulated wood charcoal (to take off the oxygen). A high temperature is necessary and it is best obtained by means of gas. A muffler is used, i.e., set in cinders or bone ash and the mixture is heated to redness.

By this method neither sulphuric acid or sulphid of iron is used. The dry, rose-colored or whitish product is applied to the skin in a wetted condition, or it may be put on dry and then wetted. Hydrogen sulphid is given off, which causes a rather foul smell. The substance is perfectly harmless to the skin and may be left on any length of time and does not even irritate abraded surfaces. It is not patented and can be made cheaply.

PRACTICAL NOTES.

Tereben Glycerin or Tereben Water is warmly recommended in the Russian *Medycyna* for the treatment of infected and gangrenous wounds. They are prepared by mixing and forcing air into the mixture through a rubber bulb and the tube which forms hydrogen dioxid by oxidation of the tereben (7 parts glycerin, 4 parts tereben and 1 part dest. water). Set aside for a few days until a sample of the lower layer gives a deep blue reaction mixed with ether and chromic acid, when it is ready for use. Keep in tightly closed receptacles. The wound is covered with gauze moistened in the tereben glycerin, an ordinary dressing applied outside.—*Cbl. f. Chir.*, March 5.

Intestine Guard and Holder.—K. Roser describes in the *Cbl. f. Chir.* of March 19 a simple little contrivance which automatically holds the intestines out of the way during an operation without requiring elevation of the pelvis or the assistance of another person, while the field is kept clear for the surgeon to operate with both hands free. It consists of an oval ring of soft elastic wire, 25 cm. long by 10 wide, slipped inside a tricot sheath, tied beyond it at each end. The oval ring is then bent over in the middle forming an elastic saddle-shaped guard which is fitted over the intestines, pushing them back and confining them like a diaphragm and held in place by its gentle pressure against the abdominal walls. Two can sometimes be used to advantage and a mull compress can be interposed if the pressure is feared. The amount of "spring" can be regulated by bending the guard, which is also easily sterilized.

Local Steam Treatment of Suppurating Wounds.—A case of extensive, chronic, subpectoral abscesses and fistula into which a sound could be inserted for 12 cm., consecutive to suppuration of the lymph glands of the axilla, is reported in the *Deu. Med. Woch.* of March 3, interesting on account of the improvement and cure that followed the local application of steam, 53 degrees C., from a distance of half a meter, for fifteen minutes, followed by a fifteen-minute bath of the whole trunk at 27 degrees R., with a final douche, finishing with airol gauze packed into the fistula. As the writer remarks, we find nothing so good as steam for disinfecting instruments, clothing, etc., and why should it not be equally effective in disinfecting wounds and, by stimulating the circulation, promote healthy granulation?

Localization of the Pains in Inflammation of the Accessory Cavities.—Weil considers the information thus derived quite important in diagnosing, as they are a projection of the inflammation on the surface by the patient. The closer the *locus morbi* to the surface the more distinct and constant the localization of the pains. Fleeting neuralgic pains and disturbances in the nasal passages must be differentiated. The latter can be eliminated by cocainization. The pain from inflammation of the deeper lying sphenoidal sinus is frequently felt in the back of the head, still oftener in the middle of the brow, between the eyebrows and the frontal eminences. He treats all such affections by irrigating through the natural openings. *Wien. Klin. Woch.*, February 24.

The Sweating Form of the Grip.—Marquié has had occasion to observe seven cases of the grip in adults, distinguished by extremely copious sweats and a marked tendency to the formation of adipose tissue. The cases commenced with bronchial disturbances; some were accompanied by distressing cardiac palpitations, all with constipation, lack of appetite and scantiness of urine. The sweats continued for months and left a neurasthenic condition, which in some cases persisted years. He noted that the sweats and bronchial disturbances alternated, one diminishing as the other increased and *vice versa*. All recovered but one, a young soldier with an evident tuberculous lesion in the right lung. A tuberculous meningitis supervened, rapidly fatal, and as the appearance of the meningitis coincided with the suppression of the sweats under the influence of atropin (one-quarter mm. *per diem*), the friends attributed the death to this medication, which always seemed to produce a general sense of suffocation and uneasiness. The grip toxin evidently affects the sweat-producing centers in this form of the disease.—*Jour. de Méd. de Bordeaux*, February 6.

Treatment of Chronic Intestinal Catarrh with Charged Lime Water.—Professor Jaworski of Cracow reports very favorable results from the use of water charged with carbonic acid, each liter also containing two grams of lime carbonate and two grams of lime

salicylate, in chronic intestinal catarrh with defective appetite, pain and tympanism, also in the diarrhea of consumptives and of the uric diathesis. In the severer cases he combines with it a stronger solution (four grams carbonate and three of the salicylate). Half a glass of the stronger solution is taken an hour before breakfast, and half a glass of the weaker after each meal. Before drinking it the excess of gas should be allowed to escape. When the gastric disturbances are severe, the half glass of the stronger is added to half a glass of boiling water, and taken hot four times a day. As the benefit is felt, the stronger solution is omitted and the weaker continued for a month or two. The effect is astringent and antiseptic, and very few cases of chronic diarrhea have resisted this treatment. —*Semaine Méd.*, February 16.

Comparative Study of Ether and Chloroform in Parturition.—H. Hensen announces that the superiority of ether over chloroform for the narcosis of parturients resides in the fact that while both suppress the action of the abdominal muscles, the effect of the ether rapidly passes away and the uterus resumes its contractions in five to twenty minutes, while the effect of chloroform is felt for a couple of hours, preventing contractions and thus postponing the expulsion of the fetus and favoring hemorrhage from atony of the uterus. His numerous tests with primiparæ and others, covering several years, were made with a bulb in the uterus connected with a barometric tube. He found that the energy of the uterine contractions increases progressively till the rupture of the bag of waters, to subside then until after the expulsion of the fetus, when the pressure increases again to reach its highest point, a remarkable phenomenon which may be due to the increase of thickness in the uterine wall at this moment. He found that five milligrams to two centigrams of morphin have no effect upon the contractions of the uterus and of the abdominal muscles.—*Sem. Méd.*, February 26., from *Arch. f. Gyn.*, lv, 1.

Treatment of Psoriasis and Eczema with Systematic Scarifications.—Jacquet has thus treated several hundred cases, but in his report restricts his description to eleven cases followed to date in the last two years. The success has been complete and permanent. The patches disappear without leaving a trace, a fact much appreciated by society women unable to appear *decolletées* previously, and artists whose hands had been affected. He only attempts this treatment in disfiguring, chronic, well-defined lesions, especially in psoriasis, after the failure of other methods. In eczema he finds the resistance to the desired effect increases progressively from the acute to the lichenoid form. He first softens the part with a permanent, soft potato cataplasm, not warm, frequently renewed, without antiseptics or oiled silk. The patient comes to the seance still "under the cataplasm." The scarifications are made in parallel lines, one to three millimeters apart, never crossed, in the superficial layer of the derma. The surface is allowed to bleed *ad libitum*, the bleeding promoted by tepid water, after which a folded piece of moist mull is applied and the patient returns to his cataplasm until the next seance. Six to sixteen are required. The scarifications are very slightly painful, even to children.—*Presse Méd.*, February 26.

Treatment of Puerperal Infections with Aromatic Essences.—A Spanish confrère has been following this method of treatment with "surprising and immediate success." He states that a single thorough application should be followed by a fall in the temperature in a few hours and he has never observed any secondary effects. He uses turpentine or essence of bergamot, and was led to attempt the treatment by his success in treating infected ulcers and wounds with turpentine. The essence is applied on a wad of cotton, inserted with curved forceps and the intrauterine surface painted with it, squeezing the essence well into the tissues, but never leaving it permanently. No speculum is required, although a preliminary vaginal irrigation is advisable. This treatment has been applied to all cases at the Maternity and in his practice for over a year, with invariable success. One application a day is sufficient, except in case of gangrene or diphtheritic patches. He begs those who wish to observe the results of the treatment to apply it first in cases of infection of the vulva or entrance to the vagina, when they will see the aspect of the ulcerations alter before their eyes. Wherever applied the fall in the temperature is constant.—E. Corminas, *Rev. de Cienc. Med. de Barcelona.*

Myeloma of the Tendon Sheaths.—A. Venot calls attention to the danger of overlooking the pedicle which almost invariably extends from a myeloma in the sheath of a tendon into the adjacent articulation, although there is no evidence of it from without.—*Rev. de Chir.*, March 10.

The Favorable Effect of Calcium Carbid on Cancerous Growths has been confirmed by experience. In contact with moisture it splits into lime and acetylene gas, and applied to cancers of the cervix, the hemorrhage, fetid discharges and pains cease at once as if by magic. Livet and Guinard report many cases thus kept in a "happy *statu quo*" by an application every four or five days or at still longer intervals. (*Nouv. Remèdes*, February 24). There is a slight burning sensation which soon passes away.

Superiority of Japanese Paper Water Bags, etc., Over Rubber.—The expensiveness and lack of durability of rubber water and ice bags has led to much fruitless research to discover an efficient substitute for rubber. Jacobsohn announces that the Japanese rice paper articles of the kind are a distinct advance in the technique of the care and comfort of the sick. They are made of several layers of the soft, flexible rice paper used for so many purposes in Japan, with resin between, finished on the outside with a coat of the famous Japanese lacquer. He exhibited some air cushions thus made, at the meeting of the Berlin Society of Internal Medicine, March 7, demonstrating that the cushions were absolutely air-tight, flexible, "feather-light," remarkably enduring, bearing a permanent weight of 150 kilograms, folding into extremely small compass when not in use and costing less than a sixth of the corresponding rubber articles now in use. His report was made after long and careful personal tests.

Treatment of Chronic Coughs.—Dr. Adolph Goldhammer of New York, in the *Medical Record*, reports very favorable results in guaiacol treatment, in cases where no tuberculous element could be recognized. His first case was one in which the cough had existed for two years, and numerous other drugs had been used without avail. Under the use of guaiacol daily for one month the cough disappeared, and the patient has been entirely free from it ever since, a period of ten months. Since then he has used guaiacol in every case of congh of more than two weeks' duration, irrespective of origin. He has found it of decided value in cases of chronic bronchitis with or without asthma. In the chronic coughs of children guaiacol has proved especially beneficial. He has employed it even in several cases of whooping-cough with excellent results. The paroxysms were rendered less severe and less numerous, and the duration of the attack was cut short to two or three weeks. For children of a delicate temperament, who have a poor appetite and who occasionally have a slight cough, guaiacol is a valuable remedy. It stops a cough entirely in a short time, increases the appetite and causes the patient to gain in flesh. It is his opinion that many a case of incipient tuberculosis could be prevented if every old cough, no matter how slight, were treated by the administration of guaiacol. In acute coughs guaiacol does not act beneficially and should not be employed. In thirty cases of cough of varied origin and description he reports that twenty-six found the symptoms disappear entirely after the drug was used for periods of from two to six weeks. In the four remaining cases the cough was decidedly improved, although not entirely cured. Eighteen of these cases were in children under 10 years; nine were in adults, three of whom were over 65 years of age.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:

Per Annum, in Advance $5.00
Foreign Postage 1.75
Single Copies . . . . . 10 Cents.

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SATURDAY, APRIL 16, 1898.

CADAVERIC SPASM.

It has been occasionally observed in cases of sudden death after great and prolonged muscular tension and excitement that the body becomes instantaneously rigid in the position assumed at the moment of dissolution; thus a soldier is killed in action and remains fixed in the position of firing his piece, a lunatic after a prolonged period of excitement is found dead in the exact attitude of a convulsion or some other equally striking condition. Few have probably had the opportunity to observe this phenomenon, but its occurrence is incontestible though it has received little mention in physiologic or medico-legal treatises. Its explanation is not altogether easy on the usual theories of rigor mortis, notwithstanding the fact that the essential conditions are, in part at least, the same. There is the same muscular rigidity lasting a longer or shorter time and probably the coagulation of the myosin, which is assumed to be the cause of rigor mortis, also exists or very quickly supplements the muscular spasm that continues so strikingly in these cases. Rigor mortis notoriously appears quickly in hard-run animals killed in the chase and this is, except in degree, a strictly analogous condition. The condition appears to require a combination of three factors for its accomplishment— a sudden or rather an instantaneous death, a profound excitation or lesion of the nerve centers presiding over movement and an intense muscular contraction at the moment and article of death. Thus, these conditions are most often satisfied upon the battle field, where sudden death, excitement and muscular tension are all, we may say, normal happenings and the ghastly similitude of vitality is hardly noted as out of the common course of events. Its rarity in civil life, if one may so call it, is the reason why it has so far escaped the sensational story teller, to whom it might afford, it would seem, a very appropriate climax for some tragic narrative. But even SAMUEL WARREN and CONAN DOYLE hardly appear to have utilized it.

A recent French thesis of Dr. MAZELLIER, a student of Professor LACASSAGNE, has treated the subject of cadaveric spasm from a medico-legal point of view, and offers some facts that are worthy of notice here. It gives the results of a series of experiments by LACASSAGNE and MARTIN on the possibility of this spasm being utilized in hiding homicide or in its detection. A murderer might, for example, put a weapon in the hand of his victim to suggest a suicide or to transfer the evidence of guilt of, it may be, still another crime. They find that it is possible to recognize the simulated grasp of a factitious suicide and the real cadaveric spasm of the hand with which, more often than is perhaps generally supposed, a real suicide holds the weapon. In the latter all the articulations of the hand combine to grasp the arm as in life and it is difficult to detach them, while in the former it is held stiffly between the rigid fingers and the palm. The fact that a localized cadaveric spasm of the hand sometimes occurs in suicides who have shot themselves in the head is itself a medico-legal fact of some considerable importance.

Another medico-legal point is that that cadaveric spasm itself is direct evidence of an instantaneous death. This need not be due to traumatism alone; it is in a certain proportion of cases due to an apoplectic stroke occurring suddenly while the subject is engaged in more or less strenuous muscular exercise of any kind. In these cases it is held that there is a sudden escape of blood into the ventricles causing by their sudden and excessive dilatation the same phenomena as were in the other instances due to the laceration of the brain substance by the gunshot wound. Whether this is exactly what occurs in all cases may be a question, the nervous shock from any sudden hemorrhage into the brain and more especially into those parts where such an accident would be instantly fatal, superimposed upon a condition of the muscular system induced by intense exertion, might easily have the same effect as a suddenly fatal gunshot wound of the brain. The fact is, however, of importance as it furnishes sometimes an indication of the cause of death where other and exterior signs are lacking. Such an instance is reported in M. MAZELLIER's thesis, where the medico-legal consultant was able before the autopsy to state the cause of death.

The important facts brought out in regard to this rare but occasionally happening phenomenon in this French physician's thesis, are that it may occur local-

ized in one member as in the cases of suicide alluded to, and that it is at times a possible and reliable indication of the lesion causing death when other indications are lacking. It is therefore something more than a mere medical curiosity; it has or may have at times a decided medico-legal importance.

THE VALUE OF THE SALIVA IN DIGESTING FOOD.

Even the merest tyro in physiology is familiar with the fact that the saliva not only prepares the food so that it can be readily swallowed and acted upon by the gastric and intestinal juices, but that it contains a ferment which possesses to a high degree the ability of commencing and even carrying to completion the transformation of starch into sugar, or in other words, the preparation of carbohydrate materials so that they can be readily absorbed and appropriated to the various uses of the economy. For many years when patients came to a physician complaining of symptoms of indigestion it was the custom to administer pepsin and hydrochloric acid under the erroneous idea that it was the proteids in the food which were not properly treated by the digestive juices and that relief could be obtained by aiding the stomach in the manner indicated. Only comparatively recently has the importance of pancreatin digestion been recognized as surpassing that carried out by the gastric juice and still more recently has the profession come to realize the fact that in many cases the predigestion of starchy foods or the administration of diastatic ferments capable of aiding in their digestion, is in a certain proportion of cases far more important than the administration of pepsin or pancreatin for their proteolytic action. Recent studies which have been made in the laboratories of Yale University emphasizes the value of the saliva as a digestive juice. They were carried out by Professor CHITTENDEN, who reported his results at the last meeting of the American Physiological Society in Ithaca. This investigator showed that great variations in the amyolytic power of the human saliva take place. Thus, he found that saliva collected before breakfast is stronger in amyolytic power than that secreted after breakfast. He also found that this greater power before a meal is not due to any increase in alkalinity but to the greater concentration of secretion coming from glands that have been resting. He also discovered that stimulation of the mucous membrane of the mouth by the vapor of ether or chloroform, or by any other substance which irritates that mucous membrane, causes a secretion richer in digestive powers and solid matters than that caused by mere mechanical stimulation. These observations are of interest not only because the importance of amyolytic ferments, both real and artificial, is attracting more and more attention from the profession, but also because two habits, supposed to be particularly prevalent among Americans, seriously influence the secretion of saliva, namely, the chewing of tobacco and the use of chewing-gum, the latter having become particularly common since the introduction of the bicycle. Professor CHITTENDEN's experiments indicate the fact that those persons with deficient digestion of the starchy articles of food should avoid chewing any such substances for a considerable period of time prior to a meal, as by this means the salivary glands will have an opportunity to rest and the liquid which they pour out when starch is taken will then be competent to digest its share of the meal. Where tobacco and chewing-gum are placed in the mouth and kept there until the time of the meal the salivary glands are not only unable to secrete enough amyolytic ferment to aid in the digestion of the starch, but are also unable to secrete enough fluid to thoroughly soften and disintegrate the food and as a result the indigestion of all articles of food ensues, since the pabulum when swallowed is not in a fit condition for gastric or duodenal digestion.

DOCTORS' BILLS.

There is probably at this moment no inconsiderable number of practitioners who are contemplating the gradually diminishing amount of their incomes, and not from the depths of easy chairs either. It warms the cockles of our hearts, no doubt, to read of the beautiful natures of our twin friends, "The Doctor of the Old School" and "Doc Sifers," and we are inclined to pass their imperfections or rather their impracticalities by, with but small censure. And that these dear old fellows are not entirely creatures of the imagination has been proven by the published accounts of the hundreds of letters from various parts of the English speaking world, each claiming a physician of the immediate neighborhood as the hero of MACLAREN's beautiful story. But it will be remembered that while lax in exacting payment, indeed often never asking any, this worthy pair were themselves the sole sufferers of their loose business methods. Did they have a collection of hungry mouths to fill, a contemplative reader, a business man, would be apt to look upon such neglect as criminal carelessness. The physician has always been looked upon as the poorest business man of any class in the civilized world. Even the clergyman has the good sense to look after his fee when performing the most sacred of all offices, and is not thought of any the worse. We need not mention the other of the great professional triumvirate, the lawyer. Yet should a doctor ask as to the forthcoming of his money before consenting to visit or take a case, the whole community would rise in arms at his heartlessness, and the rebuffed patient, the habitué of a dozen doctors' offices, which he has honored with his presence but not with his money, makes it his main purpose in life for the time being to circulate that story, with each repetition a little

more exaggerated, to the ruin of that particular physician's practice. The doctor, while preparing his satchel for attendance, could ask all necessary questions as to when and how he is to be paid. He owes it to himself, he owes it to his family, he owes it to his brother practitioners, lastly, he owes it to the patient himself that he be not made a pauper. Because his patient is unable to pay, that need not interfere with his going—ye countless thousands of cases of daily self-sacrifice on the part of physicians bear witness—but if there is ability to pay, even moderately, he should know it and when the indebtedness is to be met.

Do not put off sending bills quarterly, half yearly; you are giving your clients' warm gratitude too much time in which to cool. You yourself receive regularly every month your bills from the grocer, the tailor, the landlord, and are expected to quickly liquidate; yet the writer has many times seen people visit upon their devoted physician's head their greatest displeasure that he should venture to send them a statement under three months, intimating that they were in the habit of paying their bills, and that they did not expect in the near future to change their places of residence. In vain the argument here suggested was pleaded as an excuse. They refused to be mollified. It is too late for some of the old ones to change, but the young doctors should see to it that they make a good start. Accustom the few patients that they have to expect statements on the first of every month, and to provide for just as they do for their other creditors, or you will not infrequently find that their quarterly bill has become so large that they give up all hope of ever being able to meet it. At such a time you will call to mind too late the old story of its being cheaper to move than pay rent. "In all your gettings," get business methods. This latter is one of the many valuable points general practitioners might copy from the specialists, and for which they have not been given sufficient credit. We stand aghast at their comparative success in collecting and feebly try to convince ourselves that the people will always pay specialists. Do not believe anything of the kind; there is always a feeling of disinclination to pay for anything which no visible collateral has been offered, the specialist as well as the general practitioner. Study the systematic business-like manner, the former goes about collecting his money and go thou and do likewise.

Another evil which should be promptly remedied: the habit of large business houses of sending injured employes to neighboring physicians and calmly repudiating the small bill rendered by the latter, is a matter of such common occurrence as to hardly need mentioning except to seek its remedy. The physician commonly makes the mistake of sending the bill to the injured party; he had then better give up all hope, for that act relieves the firm of all responsibility in the matter and the patient either does not pay at all or only at a great discount. The cure is simple; it will take but a minute to call up by telephone the firm and find out definitely their responsibility in the case. Those who live in smaller towns, insist on your patient bringing you a note on the next visit, signed by someone connected with the house, stating that John Smith was injured in Mr. Jones' factory, and for Dr. Blank to kindly give him such attention as he may need. But in spite of the utmost precautions, there will remain a considerable percentage of what might be called "gross earnings" which will be as hard to get as blood out of the traditional turnip. Nevertheless be a business doctor, command your patients' respect in this regard no less than in your professional capacity, and you will be occasionally surprised in finding your efforts crowned with success, and a new book or coveted journal will be your witness to an honorable striving. Let us repeat, "with all thy gettings," get business methods.

THE WEEK IN CONGRESS.

In sanitary matters but little has been done. Dr. GALLINGER has succeeded in passing, through the Senate, bill 4190 "Authorizing the Secretary of the Interior to issue a permit to the American Invalid Society of Bo-ton, Mass., to occupy and use 160 acres of land, being part of the abandoned Fort Stanton Military Reservation in New Mexico, for the purpose of a National sanitarium for the treatment of pulmonary diseases."

From documents accompanying the bill, it is understood that the "American Invalid Society of Boston. Mass.," is a society that has in its membership such men as Rev. EDWARD EVERETT HALE, Dr. CHARLES R. NICHOLS, SOLOMON SCHINDLER (who is at the head of the Hebrew charitable societies of Boston), HEZEKIAH BUTTERWORTH, Mrs. JULIA WARD HOWE, Mrs. MARY A. LIVERMORE, and others.

This Society has already sent a great many poor people to the Rocky Mountain region at the expense of the Society, and they now purpose to equip this sanitarium. The bill as originally introduced proposed to grant the entire reservation of over 10,000 acres of land and the buildings thereon, but it was amended so as to grant 160 acres, which would seem to be ample for the purpose. There was no objection in the Senate to the passage of the bill.

RATES FOR THE DENVER MEETING.

On Saturday last the Special Committee of the Western Passenger Association reported to the general body in favor of allowing one fare and two dollars as the special rate to and from the meeting of the AMERICAN MEDICAL ASSOCIATION at Denver.

The question of time, which has been raised, was

not considered, although it is understood that the time limit will be thirty days, so as to allow of opportunity to attend the Omaha Exposition.

The route selected by the Committee of Trustees for the special train from Chicago to Denver, will be announced next week. In the meantime we respectfully request our readers to make their arrangements to go by the JOURNAL "special" from Chicago in preference to other routes.

CORRESPONDENCE.

Gynecology and Gynecolgists in Paris.

PARIS, March 1898.

To the Editor:—It is an unfortunate attribute of human nature, that our thoughts and our actions, instead of flowing on in a steady and even current, are too often marked by great tidal waves that, rising to a certain height, settle back again to their original level. We seem in this respect to be governed by the same laws that govern the progress of great, wide-spread epidemics, like, for instance, the influenza which beginning at a certain point disseminates itself until it encircles the entire globe. Following the same law, we see level-headed men, who have amassed a fortune by their economy and industry, seized by a speculative craze, and squander the savings of a lifetime in a single day. Religious epidemics attack communities and during their prevalence, men of small caliber are able to convert their thousands, while, when this wave of excitement has subsided, it takes a Sam Jones or a Booth to arouse the least spark of religious zeal.

Unfortunately for humanity, we, as physicians and surgeons, are not exempt from these periodic impulses, during the prevalence of which we lose our heads and resort to lines of practice that are contrary both to science and to sound judgment. One of the worst epidemic manias that ever struck the medical world, began about a decade and a half ago in Europe, and spread rapidly until it affected the profession of two continents. Abdominal surgery had just opened up a new field. The peritoneal cavity, which a few years before was a *terra incognita*, was invaded on all sides and by nearly everybody. The ovary was the point of attack. If not really diseased, it was accused of being the focus from which originated all the nervous phenomena to which that neurotic specimen of humanity, woman, was addicted. In their onslaught upon this organ, men vied with each other to see which could make the largest record, and then the foremost man in the contest, like the fastest horse on the trotting course, tried to beat his own record. Things went on in this reckless manner for half a score of years, and then men began to regain their reason, and only removed these important organs when they were seriously diseased.

About 1890, I believe, Dr. Péan advanced the idea that when the uterine appendages were diseased, and required to be removed, the uterus should be included in this operation.

This new departure appears to have been received with enthusiasm by a majority of operators here in Paris, who seem to be possessed with an irrepressible mania to remove the uterus, do a vaginal hysterectomy to relieve symptoms that viewed by the knowledge and light that one has attained away from here, seem most ridiculous and absurd. Up to this writing I have the notes of twenty-five operations of this kind, not including those done for fibroids and malignant growths, with the symptoms of the patients, and the pathologic appearances of the tissues removed.

As an example of the views held by prominent men on this subject, Paul Segond in a long article in the *Revue de Gynécologie* for 1897 lays down this rule: "When the annexes on both sides are diseased and require removal, then remove the entire uterus, for of what use is it to leave a few grams of muscular tissue behind that has no function?" A more perfect drainage is another argument that he advances in favor of what he calls the complete operation.

Dr. E. Jayle in an article in the same journal says: "If the ovaries and tubes are removed, the uterus should also be. If the uterus and tubes are removed, leave the ovaries, if they are not involved in the morbid process."

Dr. V. Panchet in a late thesis, gives the results of 600 hysterectomies performed by Dr. Richelot at the St. Louis, about one-half of which were done by the abdomen, and the other half via the vagina. He was able to follow up about half of these cases and thus ascertain what the after-results of the operations were. 1. The sexual functions were not altered in a vast majority of these cases. 2. In one-fourth of the cases the pelvic and abdominal pains that the patients complained of before the operation were not relieved, owing probably to peritoneal adhesions that the operations did not remedy. Ninety-four per cent. of diseases of the annexes operated on by the removal of the womb, as well as the appendages, were cured while Dr. Richelot's operations done on the tubes and ovaries leaving the womb untouched, he had only 64 per cent. of recoveries.

Dr. Pozzi, to the American profession, is probably the best known gynecologist in France. As a teacher and a writer he has few equals, and though a skilful operater he can not be called the very best in Paris. He is a man 55 years of age, but looks ten or fifteen years younger, and has a bright, intelligent face and an eye that sparkles with intelligence and vim. He has probably the largest clientage among the wealthy of Paris, of any man in the city, has lately been elected to the senate, and all in all seems too busy to give that careful attention to his hospital work that other surgeons do. His teachings in the last edition of his "Traité de Gynécologie," in regard to the indications for the removal of the uterus with the annexes when the latter are diseased, seem to be wise and judicious. After remarking that following the practice of most American authorities on the subject, he usually prefers to open the abdomen in cases of diseases of the tubes and ovaries that require to be operated on he adds, "A vaginal hysterectomy ought to be preferred to a laparotomy in all cases where the annexes are strongly adherent to the uterus, and in cases where the suppuration surrounds the wound itself." (*Peri-metro-salpingite suppurée*). He further says that: "During the last two years I have practiced more frequently than formerly the removal of the uterus with the ovaries and tubes when the latter were diseased." Any one, however, who will follow Dr. Pozzi's work at the Broca, will at once be struck by the fact that his present practice in regard to the subject I am discussing is quite different from that taught in the last edition of his excellent work on gynecology. I give my notes on the first operation I saw him do this winter:

Patient, aged 35 years, has borne three children, the last one a year ago, since which date she began to complain of pelvic and abdominal pains, and her menses have been too profuse; no increase of temperature until within the last two weeks, since which she has had a temperature of 38.5 degrees C. every evening.

Diagnosis.—Metritis, salpingitis, ovaritis, and probably pus in both tubes. Vaginal hysterectomy done. Womb found slightly enlarged, and inner surface covered with dark granulations. Ovaries nearly healthy. Left tube enlarged to about double its natural size and closed at its uterine extremity. Right tube was about equally large and presented a slight protuberance at its center, and when opened was found to contain ten or fifteen drops of pus.

If this case had been curetted and the patient put to bed and free hot water injections used, would not this have had a tend-

ency to relieve the endometritis, to have opened up the left tube, and then if the lesion in the right tube had grown worse, could it not have been removed through an incision in the Douglas' pouch, and left the woman with her uterus, as well as one ovary and tube?

Prof. Jule Emile Péan, born sixty-eight years ago in one of the small provincial towns of France, has died. When a boy, in his early teens, his father had occasion to come to Paris to consult some professional celebrity on account of some disease from which he was suffering. The old gentleman was horrified at the size of the fee he was charged, and on his return home he patted his boy on the head and said: "My son, you must be a doctor, there are millions in it." The young man heartily embraced the idea advanced by his father, and if his professional confrères here in Paris do not falsify his character, he never lost sight of the motive that his father had in view when he launched him out into the world as a doctor.

From some cause or other Péan was thoroughly disliked by many of his professional colleagues here in Paris. A prominent gynecologist speaking to me of him on the day of his funeral, remarked: "His audacity and industry were unbounded." Whatever prejudice may have existed against him while living, his contributions to gynecologic surgery and his *forcipressure* for the control of hemorrhage, are honors of which no one can rob him and which will render him immortal as a surgeon. Still, when all this is said in his favor, I think it can be affirmed with perfect truthfulness that his death left no blank in the profession that others can not fill better than he did.

Though the originator of many new ideas, he never would accept any modification of any procedure that he himself had devised. I saw him do, at the Hospital International, I believe the last operation he ever performed. It was the removal of a large fibroid through the vagina by *morcellement*. The operation was a long and tedious one, and perhaps justifiable when no better technique was known for the performance of an abdominal hysterectomy than that devised by Freund, but certainly not a justifiable one when viewed in the light of our newer modes of doing this operation. I have seen considerable of Dr. Péan from first to last. He was a prominent figure at all our International Congresses and with his giant frame and manly bearing attracted universal attention. While he was a professor of surgery in the School of Medicine of Paris, and taught at the St. Louis, I saw considerable of his work, and though he was a brilliant lecturer and a daring operator, viewed from my Anglo-Saxon standpoint, I never considered him a safe model to follow. To illustrate, some years ago a patient was put upon the table, suffering from an empyema of the left side of the chest. He was chloroformed and a portion of a rib resected, and than a free incision was made into the pleural cavity from which gushed two or three liters of pus. In three minutes more the patient was dead. Had he used less anesthetic, or substituted ether for his chloroform, and removed this fluid more gradually, perhaps this man's life might have been saved.

Professor Richelot is a man about 50 years of age, quiet, modest and unassuming in his manner and thoroughly devoted to his work. He operates three times a week at the St. Louis and if one follows him, he will see more gynecologic work than can be seen at any other operating clinic I ever followed. Whatever other operations he does, you can generally depend upon seeing a hysterectomy, either vaginal or abdominal, on any one of his three operating days during the week. Dr. Richelot has done nearly four hundred abdominal hysterectomies, a record that I suppose few, if any, have exceeded. I asked him what had been his mortality in this operation. His reply was: "Dr. C., do you want me to lie to you, as men generally do when giving their statistics? If you do, I will say 2 or 3 per cent., for that is the fashion, but if you want me to tell you the truth, I will tell you that my mortality in my first hundred cases was 7 per cent., or over, but now in the uncomplicated cases I am only losing about 5 per cent."

To illustrate how even so good a diagnostician as Dr. Richelot is, may be deceived and make an erroneous diagnosis, I cite the following case:

Patient aged 42 years, mother of seven children, looks fairly well nourished, complains of pain in back and loins and has been flooding for three months. Diagnosis: Uterine fibroid with retroversion. Vaginal hysterectomy done. When the cervix was opened it was found to contain a large blood clot. When the uterus was opened, out burst a fetus of about three and one-half months. This accident did not at all unnerve the Dr., who justified himself by giving examples in which eminent men had committed the same blunder.

The following case will illustrate the difference in the practice of the Paris school of operators, as compared to that pursued by Dr. Tuttle of New York, and many other Americans: Patient aged 32 years, aborted six months ago, since which she has had pains in her back and loins, and a slight rise of temperature every afternoon. Vaginal examination showed uterus to be fixed and immovable, with a hard mass filling Douglas' pouch and extending toward the left side. A vaginal hysterectomy was done, but before the operation was completed, a large pus sac situated behind the uterus was ruptured. The ovaries and tubes were matted together in this inflammatory exudation, and neither these nor the pus sac could be removed. So the Doctor finished the operation by packing the abscess cavity with gauze, explaining that he did not deem it essential to remove the abscess walls. Dr. Tuttle would have opened up this abscess by a free incision behind the uterus, drained it with gauze, and hoped to cure his patient, leaving her uterus, tubes and ovaries intact. If one reads his text-books or witnesses the operations of different operators, he will be struck by the lack of uniformity of the teachings of the former, and the practice of the latter in their technique for doing a vaginal hysterectomy.

It is understood that in France, as far as my observation goes at least, the forceps are always used as a means of controlling hemorrhage. Richelot's mode of operating strikes me as a good one and is as follows:

1. Draw the uterus well down with your forceps and make a circular incision around the entire neck, usually about one inch above the os, and let this incision be deep enough to include all the tissues down to the muscular substance of this organ.

2. Dissect loose all the connections between the cervix and vagina upward, until you can feel the pulsation of the uterine arteries on each side.

3. Open up widely the vesicovaginal connections in front, and the rectovaginal connections behind, until you have entered the peritoneal cavity at each point.

4. Clamp the uterine arteries on each side and continue your dissections upward, until you have reached the union of the body of the uterus with the cervix. Introduce a retractor into the anterior space between the bladder and the uterus and raise the former well upward.

5. Split open the cervix and amputate it at its junction with the body, at the same time keeping firm hold with your forceps of the lower part of the latter. With your retractor in place and the tissues raised well upward, you have a plain view of the whole anterior aspect of the body of the uterus.

6. Begin now and split this open with your scissors, and as you do so draw the organ down, so that by the time you have reached the fundus with your incision, the uterus is delivered outside through your vesicovaginal opening. Pull the body forward and continue your incision until the womb is split into two halves.

7. Introduce your fingers between these two halves of the

uterus, and pull one of them well forward. You have now the broad ligament, the tubes and ovaries on one side in plain view.

8. Clamp now, with a pair of long forceps, from *above downward*, the broad ligament, and cut away the one-half of the uterus. Repeat this on the other side.

Richelot lays great stress on this mode of applying the forceps, and by this manner of procedure avoids the accident of wounding the ureters, which he has only done once in 300 operations. The field of operation is now carefully inspected, and all bleeding points are caught by forceps, so that when finished there are generally from eight to ten forceps applied. The vagina is then tamponed as high up as the peritoneal opening with tampons of sterilized wool on which iodoform is well sprinkled. The forceps are removed after forty-eight hours, but these tampons are left for six days longer, or until vaginal injections can be safely used.

While the above technic for doing a vaginal hysterectomy is that adopted by a majority of those I have seen do this operation here in Paris, the several men I have seen perform an abdominal hysterectomy seem each to have a procedure peculiar to himself. However, as I like that adopted by Richelot better than anything I have seen elsewhere, I will briefly give his mode of operating: The patient is put in the Trendelenburg position. The incision in the abdominal walls is made large enough to easily deliver the uterus on the outside.

1. Catch the uterus and have an assistant raise it well up, at the same time putting in a wide retractor at the lower angle of your incision that will spread the parts well asunder.

2. Make an incision laterally through the serous and cellular tissue of the uterus at its anterior aspect, some distance above the bladder.

3. Separate these tissues with the fingers, down as far as the cervix.

4. Begin now on the side and put two clamps on the broad ligaments side by side, and make your incision between these clamps. The structures on the sides are then clamped and cut away until the uterine artery is reached, and this is caught with a small pair of forceps, drawn upward and cut away from its attachment to the cervix.

5. The uterus is now tilted backward and by dissecting from above downward, keeping close to the neck of the uterus, the anterior aspect of the cervix is separated from its vaginovesical attachment and thus the whole anterior aspect of the uterus is freed.

6. Tip the uterus forward and divide the tissues at its posterior aspect laterally, as you did in front, and dissect these down behind until you have entered the vagina as you had down in front, and this done you have entirely separated the uterus from all its attachments.

7. Sew up the vaginal opening in the floor of the pelvis.

8. Lastly, unite with catgut sutures your flaps of serous tissue that you have peeled from the sides of the uterus.

When your operation is done the floor of the pelvis is one continuous even surface, with nothing to show that it had ever been disturbed except the two united surfaces of your serous membrane.

W. S. CALDWELL, M.D.

(To be continued.)

Acute Pyelonephritis after Ovariotomy.

OCONOMOWOC, WIS., April 10, 1898.

To the Editor:—Mrs. F., aged 28 years, mother of five children came Jan. 3, 1898, for the removal of an ovarian cyst. The patient was in fair condition—weighing 130 pounds. She complained of the usual symptoms caused by the presence of a cyst only to a moderate degree. The usual very strict preparations were carried out by our nurses during the three days previous to the operation. The A.M. and P.M. temperature was normal and the interne found nothing abnormal about the urine, making several tests. A trial aspiration proved the contents of the cyst to be opaque and gelatinous, the cyst multilocular; there were no adhesions and a well formed pedicle. The operation consumed, therefore, but a short time, and the patient was in bed in twenty-five minutes.

After the operation the patient complained of a great deal of pain in her back and limbs, in fact all over; more so than usual in such cases. The temperature fluctuated between 99 and 100 degrees. There was no tympanites and no pain on pressure over the abdomen, but she was more or less uneasy and the urine had to be drawn as the patient was unable to void it during the first week. The urine was drawn under the most strict precautions, the passing of the catheter was however continually uncommonly painful to her, and the nurse reported that the patient had complained quite a little of pain in the urethra, when the urine was drawn before the operation. After the seventh day she began to void urine, but in connection with much tenesmus and quite frequent, these symptoms increased the next two days, and it became evident that the patient suffered from acute infectious cystitis. During the last ten years we never had a cystitis developed after an operation and I was at a loss how to account for it, as I have absolute faith in our matron and nurses.

The patient suffered quite a little from the cystitis, which was nearly well at the end of another week under the usual treatment and strict diet; the temperature had become nearly normal. However, on the seventeenth day after the operation very severe pains set in in the left side, together with a rise in temperature, some vomiting and great prostration. The urine again contained pus and blood cells, showing that the infection was passing up the left ureter. In spite of the continuation of the bland milk diet, etc., the application of ichthyol ointment to the left side and the administering of boric acid, urotropin, etc., the pain gradually traveled upward, several chills followed and the left kidney became also affected. The patient was now in a very deplorable condition; and temperature 104.5 degrees; pulse 106; respirations 22 to 28; profuse perspiration, anorexia, nausea and feeling of hopelessness. The continuous pain caused the patient to collapse decidedly, as urotropin, boric acid, alkalin mineral waters with hot milk, etc., had apparently no effect on the progress of the disease. Pyoktanin was given in capsules by the mouth, but not tolerated by the stomach, then benzoate of sodium was given, all without effect. We despaired of saving our patient. As the bladder was less sensitive we began to irrigate it with lactate of silver Credé 1-1000 twice a day, to destroy what germs we could in that organ; an ichthyol mercurial ointment was applied thickly over the region of the affected kidney, and over it hot fermentations with a diet of hot milk and selzer, somatose, almond emulsion and, as an internal germicid, salol gr. xv, four times a day.

In urotropin I was disappointed, as it always had very beneficial effect in cases of subacute and chronic cystitis before; in this case it failed. Perhaps it passed the kidneys too quick, and the continuous acid reaction of the urin in this case may have had an influence upon its not acting. For the next two days the patient remained in the same condition, then the temperature went down to 101 degrees, and the pain lessened. The patient had some refreshing sleep and the urine improved from day to day, pus and blood cells diminished, and January 26 the patient again had a normal temperature. The convalescence was not again interrupted and on February 10 the patient was able to go home.

How did this infection of the urinary tract originate? A number of microscopic examinations of the urine revealed mostly streptococci. An infection from the vagina was excluded, as there was no discharge from either uterus or vagina; besides the vagina had been sterilized, and in addition lysol douches had been used daily. On questioning the patient, she said,

that for several years she had had frequent and painful micturition. As soon as the patient was well enough, a careful examination of the urethra was made, when the source of the infection was at once revealed. The posterior third of the urethra was found ulcerated up to the neck of the bladder. This experience taught us, that it is wise to investigate the urethra of patients who complain of painful micturition, before undertaking a laparotomy or an operation, after which a catheter is expected to be used.

The urethral ulceration was treated twice a day with a 1 per cent. solution of lactate of silver, and healed rapidly. On leaving, the patient received a 5 per cent. solution of lactate of silver and an eye dropper and was instructed how to inject her urethra twice a day at home.

The stitches of the abdominal incision were removed eight days after the operation, union being by first intention.

J. H. VOJE, M.D.

Post-Graduate Extension Lectures.

BELLOWS FALLS, VT., April 9, 1898.

To the Editor:—In reading your editorial of March 26 (page 739), on "Post-Graduate Lectures at Home," I was much pleased with the suggestions you offered. It is a plan that has been carried out, in part, by our Society for a good many years. We have had such men as Prof. Conner of Cincinnati, Prof. Hanks of New York, and others. Of late years we have had in operation a plan that has been more fruitful of results in every particular. The Society of which I am Secretary, viz., the Connecticut River Valley Medical Association, with White River Medical Association and the White Mountains Medical Association, have, through the kindness and generosity of Dartmouth Medical College, held a joint meeting at Hanover, and the Professors have given us lectures on their special branches. We have also had some specialists from outside. The expense of printing, etc., has been arranged between the three mentioned societies, and it has been practically nothing. We have a plan which, it seems to me, is a step in advance of the good one suggested by you in the JOURNAL, and could be made of general use in all parts of the country by other local societies. It is a plan that I have never seen or heard of before, although it may have been in operation for years. Dr. Godfrey would not have to ask for volunteers for their next meeting as they could then join with others and meet at some convenient place and do as we are doing now.

Fraternally, J. SUTCLIFFE HILL, M.D.

ASSOCIATION NEWS.

Medical Societies Entitled to Representation in the American Medical Association, Jan. 1, 1898.—

"The delegates shall receive their appointment from permanently organized State medical societies, and such county and district medical societies *as are recognized by representation in their respective State societies*, and from the medical departments of the Army and Navy and the Marine Hospital Service of the United States.

"Each State, county and district medical society entitled to representation shall have the privilege of sending to the ASSOCIATION one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *Provided*, however, that the number of delegates for any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the ASSOCIATION.

"*Members by Application.*—Members by application shall consist of such members of the State, county and district medical societies entitled to representation in this ASSOCIATION as shall make application in writing to the Treasurer, and accompanying said application with a certificate of good standing, signed by the president and secretary of the society of which they are members, and the amount of the annual subscription fee, $5. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms."

In accordance with the above extracts from the Constitution, this list is prepared as certified by the secretaries of the State and Territorial medical societies.

Any societies that are omitted should send to the office of the Permanent Secretary notice to that effect *accompanied by a certificate from the secretary of the State society that said society is so recognized in accordance with the above quoted law.* WM. B. ATKINSON, Permanent Secretary,
1400 Pine Street, Philadelphia.

ALABAMA.

Alabama State M. S.

ARIZONA.

Arizona Territory M. S., Maricopa Co., Pima Co., Yarapai Co.

ARKANSAS.

Arkansas State M. S., Baxter Co., Crawford Co., Hot Springs M. S., Lee Co., Phillips Co., Prairie Co., Sebastian Co., Southwest Arkansas M. S., Washington Co.

CALIFORNIA.

California State M. S., Alameda Co., California Acad. of Med., El Paso M. S., Fresno Co., Humboldt Co., Los Angeles M. S., San Diego Co., San Joaquin Co., San Francisco Co., Santa Barbara M. S., Southern California M. S., Ventura Co.

COLORADO.

Boulder Co., Cripple Creek M. S., Denver Clin., Denver Clin and Path., Denver and Arapahoe M. S., Fremont Co., Lake Co., Pueblo Co., Weld Co.

CONNECTICUT.

Fairfield Co., Hartford Co., Hartford M. S., Lichfield Co., Middlesex Co., New Haven Co., New London Co., Norwich M. A., Tollond Co., Windham Co.

DELAWARE.

Delaware State M. S.

FLORIDA.

Florida State M. S., Alachua Co., Duval Co,, Hillsborough M. S., Osceola Co., St. John Co.

GEORGIA.

Georgia State M. S., Atlanta Soc. of Med., Macon M. S.

IDAHO.

Idaho State M. S.

ILLINOIS.

Illinois State M. S., Adams Co., Æsculapian S. of Wabash Valley, Aurora M. S., Belleville M. S., Brainard Dist. M. S., Bond Co., Bureau Co., Cairo M. S., Calhoun Co., Capital Dist. M. S., Central Dist. M. S., Champaign Co., Chicago Academy of Med., Chicago Gynecological, Chicago M. S., Chicago Medico-Legal, Chicago Ophthalmological and Otological, Chicago Pathological, Clay Co., Clinton Co., Coles Co., Crawford Co., Decatur M. S., Dewitt Co., Douglas Co., Egyptian M. S., Fox River Valley M. S., Galva Dist. M. S., Galesburg M. S., Green Co., Hancock Co., Henry Co., Iowa and Illinois Cent. Dist. M. S., Jackson Co., Jersey Co., Kankakee Co., Lake Co., LaSalle Co., Macoupin Co., Marion Co., Massac Co., McLean Co., Medical and Surgical S. of Western Illinois, Military Tract M. A., Monroe Co., Morgan Co., Moultrie Co., North Central Illinois, Ogle Co., Ottawa City, Perry Co., Pullman Dist. M. A., Rock River Valley M. A., Saline Co., Scandinavian M. S., Chicago; Scott Co., Shelby Co., Southeastern Illinois M. S., Southern Illinois M. S., St. Clair Co., Stephenson Co., Wabash Co., Washington Co., Western M. and S., Whiteside Co., Williamson Co., Woodford Co., Will Co.

INDIANA.

Indiana State M. S., Allen Co., Bartholomew Co., Benton Co., Blackford Co., Boone Co., Carroll Co., Cass Co., Clark Co., Clinton Co., Daviess Co., Dearborn Co., Decatur M. S., DeKalb Co., Delaware Co., Dubois Co., Elkhart Co., Fayette Co., Floyd Co., Fountain Co., Gibson Co., Grant Co., Green Co., Hancock Co., Henry Co., Hendricks Co., Howard Co., Huntingdon Co., Jackson Co., Jay Co., Jefferson Co., Jennings Co., Knox Co., Kosciusko Co., Lagrange Co., Lawrence Co., Madison Co., Marion Co., Marshall Co., Martin Co., Miami Co., Montgomery Co., Morgan Co., Newton Co., Noble Co., Owen Co., Parke Co., Peoria City, Perry Co., Pike Co., Porter Co., Putnam Co., Randolph Co., Ripley Co., Rush Co., Shelby Co., St. Joseph Co., Steuben Co., Sullivan Co., Switzerland Co., Tippecanoe Co., Tipton Co., Vandeburg Co., Vigo Co., Wabash Co., Wayne Co., Wells Co., White Co., Whitley Co.

INDIAN TERRITORY.

Indian Territory M. S.

IOWA.

Iowa State M. S., Blackhawk Co., Buchanan Co., Botna Valley M. S., Central M. S., Clinton Co., Council Bluffs M.S., Des Moines Co., Dubuque M. S., Fayette Co,, Fort Dodge M. S., Jasper Co., Julien M. S., Lyon Co., Missouri Valley M. S., Mitchell Co., North Iowa M. S., Polk Co., Ringgold Co., Southwest Iowa M. S., Wapsie Valley M. S., Wapello Co., Warren Co., Washington Co.

KANSAS.

Kansas State M. S., Bourbon Co., Eastern Kansas M. S., Golden Belt M. S., Leavenworth Co., Wyandotte M. S.

KENTUCKY.

Kentucky State M. S., Boyle Co., Central Kentucky M. S., Clark Co., Hardin Co., Lexington and Fayette Cos., Marion Co., Muhlenberg Co., Northeast Kentucky M. S., Owensboro, M. S., Paducah M. and S., Southeast Kentucky M. S.

LOUISIANA.

Louisana State M. S., Orleans Parish M. S.

MAINE.

Maine State M. S.

MARYLAND.

Maryland Medical and Chirurgical Faculty (the State Society).

MASSACHUSETTS.

Massachusetts State M. S., Barnstable Dist. M. S., Berkshire Dis. M. S., Bristol North Dist. M. S., Bristol South Dist. M. S., East Hampden M. S., Essex North Dist. M. S., Essex South Dist. M. S., Franklin Co., Hampshire Dist. M. S., Hampden Dist. M. S., Middlesex M. S., Middlesex East Dist. M. S., Middlesex North Dist. M. S., Norfolk Dist. M. S., Norfolk South Dist. M. S., Plymouth Dist. M. S., Suffolk Dist. M. S., Worcester North Dist. M. S., Worcester South Dist. M. S.

MICHIGAN.

Michigan State M. S., Bay Co., Calhoun Co., Cheboygan Co., Detroit Academy of Medicine, Detroit Gynecological Society, Grand River M. S., Grand Rapids Academy of Medicine, Kalamazoo Academy of Medicine, Marshall Academy of Medicine, Northeastern Dist. M. S., Pontiac M. S., Washtenaw Co.

MINNESOTA.

Minnesota State M. S., Minnesota Academy of Medicine, Minnesota Valley M. A., Hennepin Co., Ramsey Co., Southern Minnesota M. S., St. Louis Co.

MISSISSIPPI.

Mississippi State M. S.

MISSOURI.

Missouri State M. S., Atchison Co., Cedar Co., Central Missouri Dist. M. S., Chariton Co., Franklin Co., Grand River Dist. M. S., Hannibal M. S., Henry Co., Hodgen Dist. M. S., Howard Co., Independence M. A., Jackson Co., Jasper Co., John McDowell Dist. M. S., Kansas City Academy of Medicine, Kansas City M. S., Lafayette Co., Limton Dist. M. S., Macon Co., Memphis M. S., Montgomery M. S., Northwest Missouri M. S., North Missouri M. S., Pettis Co., Pike Co., Putnam Co., Rolla Dist. M. S., Saline Co., Santa Cruz M. S., Shelby Co., Southwest Dist. M. S,, Southwest Missouri M. S., Springfield, M. S., St. Louis M. S., St. Charles Co., St. Joseph M. S., Western Surgical and Gynecological.

MONTANA.

Montana M. S., Park Co.

NEBRASKA.

Nebraska State M. S., Lincoln M. A., Loup Valley Dist. M. S.

NEVADA.

Nevada State M. S.

NEW HAMPSHIRE.

New Hampshire State M. S., Central District M. S., Cheshire Co.

NEW JERSEY.

New Jersey State M. S., Atlantic Co., Bergen Co., Burlington Co., Camden Co., Cape May Co., Cumberland Co., Essex Co., Gloucester Co., Hudson Co., Hunterdon Co., Mercer Co., Middlesex Co., Monmouth Co., Morris Co., Ocean Co., Passaic Co., Salem Co., Somerset Co., Sussex Co., Union Co., Warren Co.

NEW MEXICO.

New Mexico State M. S., Bernalillo Co.

NEW YORK.

New York State M. A., Hornellsville M. and S. A., Kings Co. M. A., Ontario Co.

NORTH CAROLINA.

North Carolina State M. S., Buncombe Co., Charlotte M. A., Raleigh Acad. Med.

NORTH DAKOTA.

North Dakota State M. S.

OHIO.

Ohio State M. S., Adams Co., Allen Co., Ashland Co., Ashtabula, Lake and Ceaugua Cos., Belmont Co., Brown Co., Butler Co., Gallia Co., Champaign Co., Cincinnati Acad. of Med., Clarke Co., Clermont Co., Cleveland M. S., Clinton Co., Cuyahoga Co., Defiance Co., East Liverpool M. S., Eastern Ohio M. S., Erie Co., Fayette Co., Greene Co., Hancock Co., Hempstead Mem. Acad. of Med., Highland Co., Hildreth Co., Holmes Co., Jackson Co., Jefferson Co., Lawrence Co., Lorain Co., Lucas Co., Mahoning Co., Mansfield Acad. of Med., Marion Co., Meigs Co., Miami Co., Miami Valley M. S., Montgomery Co., Morrow Co., Muskingum Co., North Central Ohio M. S., Northwest Ohio M. S., Pickaway Co., Pike Co., Posey Co., Portage Co., Ross Co., Sandusky Co., Shelby Co., Stark Co., Stillwater M. A., Toledo M. A., Trumbull Co., Tuscarawas Co., Union M. A. N. E. Ohio, Union M. A., Warren Co., Washington Co.

OKLAHOMA.

Oklahoma Territorial M. S., Oklahoma Central M. S.

OREGON.

Oregon State M. S., Portland M. S., South Oregon M. S.

PENNSYLVANIA.

Pennsylvania State M. S., Allegheny Co., Armstrong Co., Beaver Co., Bedford Co., Berks Co., Blair Co., Bradford Co., Bucks Co., Butler Co., Cambria Co., Carbon Co., Centre Co., Chester Co., Clarion Co., Clearfield Co., Clinton Co., Columbia Co., Crawford Co., Cumberland Co., Dauphin Co., Delaware Co., Elk Co., Erie Co., Fayette Co., Franklin Co., Greene Co., Huntington Co., Indiana Co., Jefferson Co., Juniata Co., Lackawanna Co., Lancaster Co., Lebanon Co., Lehigh Co., Luzerne Co., Lycoming Co., McLean Co., Mercer Co., Mifflin Co., Montour Co., Montgomery Co., Northampton Co., Northumberland Co., Perry Co., Philadelphia Co., Schuylkill Co., Snyder Co., Somerset Co., Susquehanna Co., Tioga Co., Venango Co., Warren Co., Washington Co., Westmoreland Co., York Co.

RHODE ISLAND.

Rhode Island State M. S.

SOUTH CAROLINA.

South Carolina State M. S., Anderson Co., Greenville Co., Laurens Co., Medical Society of South Carolina, Richland Co., Sumter Co., Union Co.

SOUTH DAKOTA.

South Dakota State M. S., Minnehaha M. S.

TENNESSEE.

Tennessee State M. S., Chattanooga M. S., Gibson Co., Knox Co.

TEXAS.

Texas State M. S., Austin Co., Austin Dist. M. S., Brazos Valley M. S., Central M. S., Cooke Co., East Line M. A., East Texas M. S., Fannin Co., Hill Co., Houston Dist. M. S., Johnson Co., North Texas M. A., South East Texas M. A., South Collins and Rockwell Cos., Terrell M. S., Waco M. A., Western Texas M. A., Williamson Bell Milan Co.

UTAH.

Utah State M. S., Salt Lake Co., Salt Lake Acad. Med., Weber Co.

VIRGINIA.

Virginia State M. S.

WASHINGTON.

Washington State M. S., Kings Co., Pierce Co., Spokane Co., Thurston Co., Walla Walla Co., Washington M. S. Wapello Co.

WEST VIRGINIA.

Charleston M. and S.

WISCONSIN.

Wisconsin State M. S., Wisconsin Central M. S., Ashland Co., Brainard M. S., Brown Co., Central M. S., Fox River Valley, Inter Co., La Crosse Co., Milwaukee M. S., North West Wisconsin M. S., Sheboygan Co., Waukesha Co.

Section on Ophthalmology.—The preliminary program of the Section on Ophthalmology comprises the following papers:

An Easily Overlooked Form of Keratitis, by Henry Gradle, Chicago.

Remarks on DeZeng's Refractometer, by Frank Allport, Chicago.

The Clinical Aspects of Toxic Amblyopia, by Casey A. Wood, Chicago.

Some Experience with Extirpation of the Lachrymal Sac, by J. E. Colburn, Chicago.

An Additional Case of Double Microphthalmus, by Cassius Wescott, Chicago.

The Treatment of Corneal Ulcers with Pure Oxygen, by T. H. Woodruff, Chicago.

Some Uses of Electricity in Ophthalmic Practice, by H. M. Starkey, Chicago.

Treatment of Disorders of the Lachrymal Apparatus, by Leartus Connor, Detroit.

Glaucoma and Detachment of Retina, by W. Cheatham, Louisville.

Phlyctenular Keratitis, by D. S. Reynolds, Louisville.

The Treatment of Blepharitis with Formalin, by Herbert Moulton, Ft. Smith.

The Dynamics of the Extrinsic Ocular Muscles as the Result Obtained by the Examination of 100 Medical Students, by F. B. Tiffany, Kansas City.

Regular Astigmatism is not always Congenital, Neither is it Unchangeable, by Wm. C. Bane, Denver.

The Use of Large Probes in Strictures of the Lachrymal Duct, by G. M. Black, Denver.

Galvanism in Choroiditis, by R. F. LeMond, Denver.

The Treatment of Suppurative Dacryocystitis, by Arthur Prince, Springfield.

A New Perimeter, by C. H. Williams, Boston.

Eye Muscle Tests with Colored Glasses, by Frank B. Eaton, San José, Cal.

Report of a Few Cases of Acute Glaucoma, by H. Bert Ellis, Los Angeles.

Report of a Case of Quinin Amaurosis, by J. M. Ball, St. Louis.

Extirpation of the Lachrymal Sac and Gland, by C. R. Holmes, Cincinnati.

The Field of Fixation or the Home of the Guiding Sensation, by G. C. Savage, Nashville.

Additional Notes on the Employment of Absorbable Sutures in the Operation of Looping the Tendons of Ocular Muscles, by J. O. McReynolds, Dallas.

The Pathology of Toxic Amblyopia, by G. E. de Schweinitz, Philadelphia.

The Frequency of Senile Opacity in the Crystalline Lens and the Proper Definition of Cataract, by Edward Jackson, Philadelphia.

The Treatment of Epiphora and Affections of the Lachrymal Apparatus, by Samuel Risley, Philadelphia.

The Uses of Electricity in Ophthalmology, by S. Lewis Ziegler, Philadelphia.

Use of Aluminium for an Artificial Vitreous, by D. C. Bryant, Omaha.

Some Severe Cases of Tobacco and Quinin Amblyopia, by E. C. Ellett, Memphis.

Unsatisfied Sexual Desire a Cause of Heterophoria in Both Sexes, by L. R. Culbertson, Zanesville.

Report of a Case of Hemorrhagic Retinitis (idiopathic?), by Yard H. Hulen, Galveston.

A Demonstration of the Sideroscope of Asmus, by A. Barkan, San Francisco.

Amblyopia from Auto-intoxication, by Henry B. Young, Burlington.

SOCIETY NEWS.

New York State Medical Association.—The fourteenth annual meeting of the New York State Medical Association, Third District Branch, will be held at Syracuse, N. Y., June 2, 1898. F. W. Higgins, Secretary, Cortland, N. Y.

Southwest Missouri Medical Association.—The twenty-second annual meeting of the Southwest Missouri Medical Association will be held at Cape Girardeau, Mo., May 3, 4 and 5. M. Rosenthal, Corresponding Secretary, Kennett, Mo.

Tri-State Medical Society.—The following officers were chosen at the recent meeting in Dubuque, Iowa: President, C. E. Ruth, Keokuk; Vice-president, Dr. Murphy, St. Louis; Treasurer, Dr. Fairchild, Clinton, Iowa; Secretary, Dr. Fowler, Dubuque.

Kentucky State Medical Society.—Dr. H. K. Adamson, the Chairman of the Committee of Arrangements, reports progress in his arrangements and believes that the indications give promise of a full and profitable meeting in Maysville on May 11, 12 and 13. That city has always sent a large and influential delegation to the meetings in other towns, and there is no doubt that the compliment will be returned with interest. Moreover, Maysville presents peculiar features in that it is the most northern and eastern point available for State society meetings. A large number of physicians from Cincinnati and other Ohio cities may be expected, while the blue grass contingent may be expected to turn out in full force.—*Am. Practitioner and News.*

American Microscopical Society.—The next meeting of this Society will be held in Syracuse, N. Y., Aug, 30, 31, and Sept. 1, 1898. The Society is invited to meet in Syracuse by the Academy of that place. The daily sessions of the Society will be held in the new building of the College of Medicine, Syracuse University. The building is centrally situated, has commodious lecture-rooms well suited for the work of the Society. Its laboratories are ideal rooms for trade displays of apparatus or for a working session; and in the evening an exhibition soiree, which will probably be made an important part of the exercises. The time of this meeting has been so fixed as to make it convenient for members of the American Society for Advancement of Science, on leaving Boston, to attend the Syracuse meeting on their way home.

Society of Internal Medicine.—A meeting of Chicago physicians was held in the Chicago Medical Society Rooms, Thursday evening, April 7, 1898, to organize a Society of Internal Medicine, devoted especially to the interests of the general practitioner. Dr. J. H. Hollister was elected Chairman of the meeting, and Dr. John A. Robison, Secretary. The question came up as to whether a separate society should be formed, or whether it should be a department of the Chicago Medical Society. Speeches were made *pro* and *con* by Drs. Ware, Davis, Jr., Lyman, Thomas, Billings, Hollister, Robison, Favill, etc., the consensus of opinion being that it was desirable to have the Chicago Medical Society so broadened as to include all branches of medicine—a very sensible conclusion. A committee of five was appointed to confer with the Chicago Medical Society relative to broadening its scope.

American Medico-Psychological Association.—The fifty-fourth annual meeting of the American Medico-Psychological Association is to be held at the Southern Hotel, St. Louis, May 10 to 13 inclusive. The program for the meeting includes a large number of papers of interest, and the annual address will be delivered by Dr. J. T. Eskridge of Denver, the subject being "The Mutual Relations of the Alienist and Neurologist in the study of Psychiatry and Neurology," certainly a living question at the present day, and one that will be interestingly handled by the speaker. The meetings of this organization have of late years been more and more attended by neurologic specialists, and the coming one in such a medical center as St. Louis, will probably have a larger attendance of those not directly connected with the specialty of psychiatry than has been always the case.

PUBLIC HEALTH.

International Prophylactic Measures are not restricted to the bubonic plague and cholera alone in Europe. The principality of Montenegro has established a military cordon and quarantine along the border to protect the country from an epidemic of smallpox now raging at Scutari, a town of 36,000 inhabitants over the line in Albania.—*Sem. Méd.*, March 19.

Sanitaria for Tuberculous Patients.—In Germany Stettin already has an institution with accommodations for eighty inmates, erected at an expense of 350,000 marks; one in Thuringia is to be opened in July, and others at Wiesbaden and Munich

are progressing favorably. The Congress of Naturalists and Physicians, which is to convene at Dusseldorf in September, has appointed a standing committee for this matter. We notice in this connection the negative results obtained from an exhaustive study of the vital statistics of the region surrounding Davos in the Engadine, from which it appears that the population living in and around tuberculosis resorts are not exposed to greater danger of contagion than others elsewhere.

Smallpox in Alabama.—Smallpox was declared to be present in epidemic form in Birmingham, Ala., as long ago as in July, 1897, by the Board of Health of Jefferson County. At the close of 1897 there had been reported 406 cases, with 15 deaths. The epidemic has been of mild type, and chiefly confined to the negro population. As a writer in the *Medical News* explains, there is in every county in Alabama a Board of Health which has well-defined powers and a legal status. Every county health officer in the State is required by law to furnish vaccine free of cost at all times. There is, however, no compulsory vaccination law in the State code. There is a large proportion of the population who will not submit to vaccination when it is voluntary. Under the charter of the City of Birmingham the Council has power to pass a compulsory vaccination law, and upon request of the Board of Health proceeded to pass it as soon as smallpox was declared epidemic. A corps of vaccinators, house disinfectors and inspectors was appointed without delay, and during the next three months the vaccination corps went over the city four times. Daily reports were published and sent to the journals. After some three months the epidemic was so well under control that most of the inspectors and vaccinators were discharged, and later, when no new cases were reported during four weeks, the epidemic was declared to be at an end. Cases, soon, however, began to appear, being imported into the city and country, and the health machinery, consisting of pest-houses, detention-camp, inspectors, ambulances, etc., was for a time continued in operation. Good and efficient work has been done by Dr. McGruder, one of the ablest officers of the Marine Hospital Service, but perfect results have not been attained, for smallpox has not been eradicated. More than $20,000 has been expended by the county and city authorities, and a vast amount by the Marine-Hospital Service. The reasons for this failure are plain: absence of a State compulsory vaccination law, a prejudice against vaccination and, lastly, the mildness of the disease during the present epidemic. Had the disease been of the ordinary type, as regards severity, it is safe to assume that systematic concealment of cases could not have been practiced by the colored population. The truth has been that many of them seemed to dread the sore arm incident to vaccination more than they did the mild smallpox, which, in not a few instances, did not even confine them to bed. This mildness was especially observed in children, contrary to the usual rule. Regular detective work was required of the Government inspectors in their efforts to find the cases, such were the expedients employed to conceal them. When smallpox will be eradicated from Alabama and adjoining States is problematic; certainly not until compulsory vaccination laws are passed, accompanied by large appropriations for their enforcement. The disease has been in lower Alabama for nearly a year and a half, having been introduced from an adjoining State. From a medical standpoint the interesting feature has been the extreme mildness of so many of the cases.

BOOK NOTICES.

Surgical Pathology and Principles. By J. JACKSON CLARKE, M.B., F.R.C.S., with 194 Illustrations. Longmans, Green & Co., London, New York and Bombay. 1897. Pp. 440.

This work is divided into two parts, the first of which is devoted to general surgical pathology, and contains chapters on repair, inflammation, infective inflammation, new growths, dermoids and malformations. Part II is given to diseases of special tissues and organs, and contains chapters on diseases of bone, jaws and teeth, joints and bursæ, muscles and tendons, nerves, diseases of arteries, diseases of veins, lymphatic vessels and glands, mouth, tongue and alimentary tract, abdominal hernia, intestinal obstruction and peritonitis, diseases of salivary glands, liver and pancreas, respiratory tract, thyroid gland, acromegaly; brain, ear, eye; spinal column and cord; deformities of the extremities; urinary tract, testes, etc.; female generative organs, the breast, and the skin.

This work is very concise and contains the essentials on the subject of surgical pathology. There are few omissions, and if there are any errors we have not encountered them. The work is well printed.

Atlas and Essentials of Pathological Anatomy. By O. BOLLINGER, M.D., Volume 1. Circulatory, Respiratory and Digestive Apparatus, including the Liver, Bile Tracts, and Pancreas; with 69 colored figures upon 60 plates, and 18 illustrations in the text. New York; Wm. Wood & Co., 1898. Pp. 246.

This little volume is one of the Wood Series of medical hand atlases. For beauty of illustration, interest of subject-matter and practical value, it can hardly be surpassed. The second volume of this atlas is in press and will soon be issued. This volume includes pathologic anatomy, circulatory apparatus, lymphatics and blood vessels, diseases of the respiratory organs, diseases of the digestive apparatus, the liver, bile ducts, and pancreas. The illustrations are beautiful and the coloring extremely natural. Appended to each plate we find an explanatory text, together with a brief clinical history of the case from which the specimen was taken. We commend the book.

Studies From the Yale Psychologic Laboratory. Edited by EDWARD W. SCRIPTURE, Ph. D. Vol. iv, 1896. Paper. Pp. 141. Illustrated. Yale University, New Haven, Conn.

The following papers are included in this volume: "Reaction-time in Abnormal Conditions of the Nervous System," by A. G. Nodler; "Researches on Reaction-time," "Researches on Voluntary Effort," "New Apparatus and Methods," and "Elementary Course in Psychologic Measurements," by E. W. Scripture; "Influence of the Rate of Change Upon the Perception of Differences in Pressure and Weight," and "Weber's Law in Illusions," by C. E. Seashore.

The International Medical Annual and Practitioner's Index; A Work of Reference for Medical Practitioners; Sixteenth Year. New York: E. B. Treat & Co. Pages 740. Price $3.00.

The Annual for this year surpasses in excellence of material the general make-up of any previous issue of this well known reference book. It is an excellent lexicon of our literature, and the low price at which it is sold makes it especially desirable. Among the several year books the International justly takes front rank.

Transactions of the Nineteenth Annual Meeting of the American Laryngological Association. Cloth. Pp. 200. Illustrated. New York: D. Appleton & Co., 1898.

This volume covers the work of the session held in Washington, D. C., May 4, 5 and 6, 1897, and contains the following papers: "Guaiacol as a Local Anesthetic in Minor Operations on the Nose and Throat;" "Sub-mucous Hemorrhage of the Vocal Cords;" "Hysteric Dysphagia;" "Remarks on Treatment of Chronic Affections of the Faucial Tonsils, with Demonstration of Instruments;" "On the Treatment of Chronic Frontal Sinusitis by Means of an Opening Through the Anterior Wall of the Sinus and Drainage Through the Nose;" "Papillary Edematous Nasal Polypi and their Relation to Adenomata;" "A Case of Adenocarcinoma of the Nose;" "Atrophic Rhinitis; Its Nature and Symptoms;" Remarks on Atrophic Endorrhinitis;" "Treatment of Atrophic Rhinitis;" "Tertiary Ulceration Simulating Sarcoma of the Tonsil;" New Method for the Relief of Certain Enlargements of the

Turbinated Bodies;" "Case of Angeioma of the Tonsil, with Recurrence Three Years after Removal;" "Case of Sub-glottic Fibroma; Removal by Tracheotomy and Curetting;" "Contribution to the Study of the Treatment of Laryngeal Phthisis;" "Primary Lupus of the Larynx;" "Sarcoma of the Nasal Passages;" "Angeioma of the Nose;" "Nasal Bacteria in Health;" "Supplementary Note on a Case of Martin's Bridges for Depressed Nose."

Transactions of the Berks County Medical Society, for the year ending Dec. 31, 1897. Paper. Pp. 121. Reading, Pa., 1898.

The volume contains, in addition to society data usually found in transactions, the following papers: "Address of President;" "An Essay on Sanitarians and Sanitation;" "Pulsating Empyema;" "Tubal Pregnancy and Appendicitis;" "A Case of Simulated Pregnancy Going on to Labor;" "Uterine Fungosities and the use of the Curette;" "Pleuritic Effusions;" "Intestinal Hemorrhage in Typhoid Fever;" "Fever in its Treatment;" Cystic Liver;" "Foreign Bodies in the Eyeball;" "Refraction Errors as a Cause of Reflex Disturbances;" "Treatment of Croupous Pneumonia."

NECROLOGY.

WM. H. JOHNSTON, M.D., New York University Medical College 1867, of Birmingham, Ala., died there April 3. He served on the Confederate side during the war, before which he was for one year a medical inspector of the department of public charities, New York city.

AMBROSE M. MILLER, M.D., Lincoln, Ill., died April 2. Doctor Miller was a former member of the Legislature and superintendent of the State asylum for the feeble-minded. He was graduated from the Washington University Medical School in 1853, and a member of the Illinois Army and Navy Medical Association.

WILLIAM BLAND BIRD, M.D., Baltimore, Maryland University 1892, April 4, aged 25 years.——Charles A. Brun, M.D., Columbus, Ohio, March 29, aged 28 years.——Henry G. Buckingham, M.D., Clayton, N. J., April 4, aged 61 years.——A. F. Chase, M.D., Philadelphia, April 2, aged 60 years.——John J. Cullinane, M.D., Buffalo, N. Y., March 31, aged 31 years.——J. M. Dunlap, M.D., Manheim, Pa., Jefferson 1845, April 4, aged 76 years.——Lloyd H. Smith, M.D., Easton, Md., April 3, aged 45 years.——Elbridge G. Stevens, M.D., Old Orchard, Me., March 26, aged 87 years.——John Albright, M. D., at his residence in Madison, N. J., April 2, aged 82 years.

MISCELLANY.

State Board Examinations.—The JOURNAL of March 26 contained a list of States requiring all graduates to stand examination before the State Board. We are informed that Massachusetts also requires examinations of all except graduates from its own schools.

Prizes for the Investigation of African Diseases.—A gift of $5000 to be used in promoting the study of the diseases of the Congo, has been received by the Society of Colonial Studies of Brussels, and the Society offers two prizes of $500 for some notable addition to the knowledge of the evolution of the hematozoon of Laveran and for the discovery of the origin of hemoglobinuric fever.

Irregular Hours and Small Pay.—The stranger remarked: "I think I can tell what your business is." "What?" "Night watch." "No, friend, you are mistaken; they can go to sleep on their beat and they draw their wages regularly." "Well, then you're a fireman, ain't you?" "Worse than that; no such regular pay or sleep for me." "Well, what are you then?" "Why, I'm a doctor; one of those unfortunate fellows who are called up so often that they don't know night from day, excepting when they get out of town, and never draw their pay while they are away, either."

A French Commission on Tuberculosis.—On the motion of M. Brouardel, the Paris Academy of Sciences has appointed a commission to study the question of propagation of tuberculosis. The commission is to consist of the six members of the section of medicine and surgery, the two permanent secretaries and MM. Brouardel, de Freycinet, de Jonquières, Chauveau, Duclaux, Arm, Gautier.

Leukemia in a New-born Infant.—L. Pollmann reports a case of pronounced leukemia in an infant born of healthy parents, without syphilitic antecedents. On account of the verrucous endocarditis found at the necropsy the nineteenth day after birth, Pollmann is inclined to ascribe the origin of the leukemia to some infective process which affected the mother during her pregnancy, but which remained latent as far as she was concerned.—*Muench. med. Woch.*, January 11.

The Brooklyn Ambulance System.—Dr. Robert A. Black, who, under the title of an Assistant Sanitary Superintendent, is the highest sanitary official in the borough of Brooklyn, city of New York, has been compelled by lack of funds to discontinue two ambulances that have for twenty-five years been run by the Brooklyn Health Department as "City Ambulances." Their stations were at the Long Island College Hospital and at the Eastern District Hospital for service in the two main districts of the city, or borough, respectively. If these two institutions are to have ambulance stations of their own in the future it is probable that they will be compelled to find their own funds for that end, as is done by various other hospitals that have their private ambulances.

Rush Medical College out of Debt.—The affiliation of Rush Medical College with the University of Chicago is now practically assured, the debt of $71,000 on the college having been paid off by members of the faculty and friends of the institution. Principal among those who rendered this assistance are: Drs. Ephraim Ingals, Nicholas Senn and E. Fletcher Ingals. When the affiliation was announced by President Harper of the University of Chicago (*vide* JOURNAL, p. 101), it was conditional on the wiping out of the debt of $71,000, the change in the methods of choosing trustees, and the advance requirements for students.

Donation to the East Brooklyn Dispensary.—Mr. Henry Batterman, a public-spirited merchant of Brooklyn, has notified the trustees of the Bushwick and East Brooklyn Dispensary, that he is prepared on demand to give them an unconditioned gift of $25,000 in memory of his dead daughter. Upon receipt of the news the trustees at once selected a committee to obtain plans for a new dispensary building. The present one is located at the corner of Lewis and Myrtle Avenues and consists of buildings that were formerly frame residential property.

Result of Examinations taken before the Illinois State Board of Health during the years 1895, 1896 and 1897 by physicians required to supplement their diplomas by examination, by non-graduates and midwives:

1895. Supplemental, 45; passed, 24; failed, 21. Non-graduates, 35; passed, 13; failed, 22. Midwives, 108; passed, 42; failed, 66. Total passed, 79; total failed, 109.

1896. Supplemental, 13; passed, 9; failed, 4. Non-graduates, 36; passed, 14; failed, 22. Midwives, 102; passed, 30; failed, 72. Total passed, 53; total failed, 98.

1897. Supplemental, 35; passed, 27; failed, 8. Non-graduates, 41; passed, 12; failed, 29. Midwives, 77; passed, 50; failed, 27. Total passed, 89; total failed, 64.

Total for three years: Passed, 221; failed, 271.

Kryofin, an Antipyretic.—A new antipyretic, an analogue of phenacetin, is under trial in Germany and Switzerland. It is a para-phenetidin derivative, being the condensation product obtained from heating that substance with methoxyacetic acid, phenacetin being an aceto-para-phenetidin. Dr. Hermann

Eichorst says this is the most reliable antipyretic with which he is acquainted. This conclusion was arrived at after careful test by Dr. Bischler at the medical clinic of the University of Zurich. Kryofin forms white, odorless crystals, which have no taste, and are, therefore, conveniently taken in powder form or in wafers. It is soluble 1 to 52 in boiling, and 1 to 600 in cold water. In concentrated solution kryofin tastes bitter and biting. A reliable active dose is seven and a half grains. —*Deutsche Med. Wochenschrift.*

Introduction of the Crookes' Tube into the Natural Cavities for Radiography.—The *Presse Méd.*, March 9, reproduces some radiographs taken with a long and slender Crookes' tube inserted in the vagina (Destot diaphragm Crookes' tube). The harmlessness of close contact of the tube with the tissues was carefully tested beforehand by personal experiences, by L. Bouchacourt, who states that "no after-effects follow the use of the static machine in the place of the Ruhmkorff coil, as has been demonstrated by Destot, Free of Chicago and Monell of New York." The tube was inserted within a wooden speculum or tube, with an adjustable cap at the distal end. The rays started from a point not far from this end and the patients radiographed did not feel the electricity at all, at any time during the ten to thirty-five minute tests and exposures. No after-effects have been perceived during the month since. The positive pole was in contact with the ground, with which the patient was also in contact. The body therefore served only as a support and no sparks nor sensations of any kind were experienced. Bouchacourt suggests that special tubes and instantaneous exposures may result in radiographs taken with the tube in the esophagus, trachea or other cavities, while the buccal cavity, the rectum and the vagina can already be radiographed in this way.

Pathology of Epilepsy.—N. Krainsky of Charkow asserts that there is a close and constant connection between the excretion of urea and epilepsy. Every attack is preceded, twenty-four to forty-eight hours, by a diminution in the amount of urea excreted, and as long as an epileptic excretes 0.6 to 0.8 urea during the day there is no danger of an attack, but if the excretion falls to 0.45 or 0.35, one is imminent. He therefore suggests that epilepsy instead of being a purely nervous affection may depend upon anomalies in the metabolism. Attempts to influence the excretion of urea with piperazin and lysidin were ineffectual, but lithium carbonicum, 1.0, three times a day, produced a decidedly favorable effect. Animals injected with the blood of epileptics drawn during an attack were affected with paralysis and periodical attacks, terminating fatally in four to eight days. As injections of carbamic acid ammonium produced exactly similar effects, Krainsky is inclined to ascribe the attacks to an accumulation of this salt in the organism. During the attack it is transformed into urea and water. This assumption harmonizes with the known favorable effect of potassium and sodium bromid, as they form with it the harmless potassium and sodium salts of carbamic acid.—*Wien. klin. Woch.*, February 24.

The Laporte Case.—The French supreme court of appeals has reversed the decision of the lower court condemning Dr. Laporte to three months imprisonment—the particulars were given in the JOURNAL at the time, Nov. 13, 1897, page 1029—considering that the extenuating circumstances were sufficient to free him from penal responsibility. Commenting upon the lack of suitable gynecologic instruments which was the primary cause of the fatal lesions in the case, a writer in a Paris daily urged that the public authorities ought to equip young physicians with proper instruments for the practice of their art, at the public expense: "We spend millions to supply our young soldiers with all the latest appliances to *destroy* life, and not a cent goes to the infinitely more important work of equipping our young professionals to *save* life." As a consequence of this affair many physicians summoned to a case of difficult delivery shrink from assuming the responsibility, and on one pretext or another decline to attend. Professor Pinard thus relates a case in which the patient sent for seven physicians in turn without securing one, and was finally carried to the hospital at 11 P.M., dying before morning, which he thinks would not have occurred if prompter measures could have been applied.

The Siphon Drainage of Large Cavities.—Heaton describes a familiar apparatus for the continuous siphonage of the contents of large cavities, with an important modification. As is well known, siphonage is commonly seriously interfered with by the sucking of the soft walls of the cavity against the openings in the rubber or glass tubes employed, and consequent interference with the action of the siphon. Heaton has employed with success an outer perforated tube, and an inner tube which is connected with the siphon. Fluid trickles into the outer tube through the perforations and is then sucked up through the open end of the inner tube. This apparatus has answered its purpose well in six cases in which it has been employed.—*British Medical Journal.*

Abstention from Alcohol in Hospitals for the Insane.—Dr. Schlangenhausen of Villach, writing to the *Lancet*, March 5, refers to the views of German alienists as expressed at their recent convention at Hanover, regarding the *rôle* of alcohol in hospitals for the insane. This subject of the employment of stimulants in asylums was discussed by Dr. Hoppe of Allenberg, who concluded his discourse by expressing the opinion that alcohol should not only be kept out of the reach of drunkards by establishing in asylums a so-called drunkards' department, but should be kept altogether out of asylums, milk or lemonade being substituted for it. "If alcoholists," contended Dr. Hoppe, "were not to be allowed to have alcohol, then the other patients should also not be allowed to have it, as otherwise it would be impossible to make alcoholists practice total abstinence." The greater portion of the alienists present were in favor of Dr. Hoppe's views; and some of these alienists, amongst others Forel of Burghoelzli, and Mocli of Berlin, have already introduced the system of total abstinence into the respective asylums of which they are the medical superintendents. At this convention was passed a resolution directed principally against a criticism contrary to facts on the part of the Reichstag in January, 1897, having reference to the actual condition of German asylums. This resolution is as follows: "This meeting concurs in the proposal adopted at the sitting of the Reichstag for regulating in conformity with the laws of the empire the supervision of lunatic asylums. But this meeting considers it a duty to point out once more that the most important reform consists in the establishment of independent boards of supervision directly subordinate to the minister and at the head of which stands a specialist occupying that post at headquarters."

What is Fame?—A correspondence, which doubtless will be highly amusing to Mr. Frederic Treves, is at present in progress in the pages of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. Two practitioners have been and are discussing the subject of appendicitis and its treatment, and they differ. In a recent communication one of them in support of his contention aspired to silence his opponent by quoting Mr. Treves. But the effect was scarcely that which was expected. The opponent retorted by saying "my friend quotes Treves and Thalamon, both of whom had limited experience with the operation of appendicitis, and whose opinions should not count alongside of such men as Robert Morris, J. B. Murphy, Joseph Price, Fowler and Deaver, men who have had hundreds of operations and seen the terrible results of procrastination." Again, the writer adds, "my friend will accept the dictum of a general surgeon with a very limited experience

in abdominal surgery, like Treves, or some young man, also with a quite limited experience, like Thalamon, while I prefer the views of men who have operated on a couple of hundred cases each, like Price, Deaver, Murphy, Fowler, Morris and others." After this, English surgeons who have ventured to admit that they have operated upon appendicitis cases will have to hide their diminished heads. In passing, however, it might be observed that if the capacity of a surgeon is merely one measured by the numerical index of his operations, then competition with a "great country" like America is quite impossible. But it is worthy of note that soon after appendicitis was discovered it became in the United States a new disease. Judging from the literature upon the subject, we suppose that it has since become hereditary; for to be fashionable in America everyone must have had appendicitis and have been operated upon.—*Med. Press and Circular*, London, March 9.

Version Extraordinary by Ramsbotham.—The *Reminiscences* of the venerable Dr. Robert Barnes of London, as given by him in current issues of the *Scalpel*, afford us the following anecdote: My recollections of the London Hospital are pleasant. I was elected assistant obstetric physician in 1859, and so had at first to serve under Dr. Ramsbotham. We worked very well together, but he continued to hold office longer than was expected. I may relate one instance, illustrating the anomalous position in which the obstetric physicians were held. A case of gestation, demanding delivery by Cæsarian section, occurred. Obviously this was an obstetric case, but under the surgical law, delivery requiring the knife was within the right or duty of the surgeon. Ramsbotham and I had to look on while the surgeon operated. The surgeon laid open the abdomen, laid bare the gravid uterus, made an ample incision in it. The fetus came into view, its long axis corresponding to the long axis of the uterus. He seized an arm, dragged it, expecting to lift the fetus easily out of the uterus. He was foiled, but tugged at it till uterus and fetus together came through the abdominal wound. At this crisis Ramsbotham had to intervene and do the obstetric work. He put the arm back, by a delicate maneuver, seized a foot, and holding this with one hand, whilst he applied counter-pressure with the other hand upon the head and upper part of the trunk, he turned, and extracted the child with the greatest neatness and ease. A more beautiful and artistic demonstration of the problem of turning than this completely visible performance it is impossible to imagine. One thing it proved was that the surgeon was not qualified to practice obstetrics.

Sexual Origin of Neurasthenia and Psychoneurosis.—Sigmund Freud announced a while ago that every case of psychoneurosis, fixed ideas, etc., had for its predisposing cause some abnormal occurrence in the sexual life before the age of eight years, consciously or unconsciously remembered. He now asserts that every case of neurasthenia has a similar basis, some abnormal occurrence or occurrences in the sexual life of the patient at the present time or since puberty. He scouts the idea that mental overwork or excess of household cares can alone induce neurasthenia, although any depressing factor may favor its development. He even insists that absorbing occupations, especially intellectual, protect against the evolution of neurasthenic affections. He divides them into: 1. Neurasthenia proper, which he claims can always be traced to excessive masturbation, unnatural sexual intercourse, etc. 2. "Anxiety neurasthenia," distinguished by dread, restlessness, agoraphobia, vertigo in walking, sleeplessness, etc.; this form he states can also invariably be traced to sexual influences in the nature of unsatisfied impulses, coitus interruptus, abstinence with inflamed desires, etc. He protests against the prevailing hypocrisy in regard to sexual matters, and urges the physician to assume an abnormal sexual life as his guiding star in the etiology of neurasthenia, as this alone will help him to treat it rationally, after winning his patient's confidence. In cases absolutely impossible to trace to any abnormal sexual occurrences, he decides that the affection is not neurasthenia, and by eliminating this conception he has discovered unsuspected local affections, in one instance a latent suppuration in one of the accessory nasal cavities, which had only produced neurasthenic symptoms, entirely cured by an operation.—*Wien. klin. Woch.*, 1898, Nos. 2, 4, 5 and 7.

Untutored and Barbarous Medical Practice in the Orient.—It is estimated that exclusive of medical missionaries who are sent to uncivilized lands there is only one qualified physician to every two or three millions of the peoples of Asia and Darker Africa. The following are some of the heathen conditions and practices mentioned by missionaries in their reports: "Eighty families with smallpox in one street in a Burmese city and no physician attending them." "A prescription given by a Chinese physician with the remark: 'This contains so many ingredients that it will cure anything,' and numbering among these twenty ingredients a centipede, a scorpion, a horned toad and a beetle." "A Chinese girl, on entering a foreign hospital, reported having taken by prescription 200 boiled spiders, besides serpents' eggs." "Bricks piled on a broken leg to keep down the swelling." "Babies stuck all over with red hot needles till hardly an inch of unpunctured skin remained." "A man coming for help to missionaries in Africa dragging a broken limb, no surgeon to set it." "Women in India, in their direst need, driven out of the house and left alone or given over to the care of ignorant, superstitious women of the lowest caste."

Gleanings.—Soothing and healing effect of mentholized collodion in extensive contusions of the soft parts, highly lauded in the *Tribuna Méd.*, December 30, 1897.—Several cases of hydrops universalis accompanying malaria cured with antimalarial treatment (*Wien. klin. Woch.*, February 24).—Copious hemorrhage and extensive iridodyalisis during an operation for cataract; recovery (*Tribuna Méd.*, December 15).—Twenty-one cases of puerperal tetanus on record since 1890; only one recovery. First symptoms are trismus and difficulty in swallowing (*Arch. f. Gyn.*, liv, 1).—Case of combined migraine, unilateral paralysis of the cervical sympathetic and Basedow's disease in a woman of 38 years, showing the importance of vasomotor disturbances in the pathogenesis of the latter. Migraine appeared first at 17 years (*Deu. Med. Woch.*, February 17).—Typical case of Addison's disease cured with suprarenal extract and capsules, reported by Béclère. No recurrence in three years since (*Presse Méd.*, February 26).—Widal and Nobécour have confirmed the antitoxic properties of the nerve centers in the case of strychnin intoxication, already established by Wassermann in regard to tetanus, although with less positive results (*Ibid.*, *vide* JOURNAL, February 19, page 449).—Absolute failure of serodiagnosis in fatal typical typhoid fever in an epileptic (*Ibid.*)—Delezenne asserts that peptone, usually harmless, injected into the veins of a dog becomes fatally toxic, producing paralytic manifestations if heated to 120 degrees C, although still retaining its marked coagulating properties (*Ibid.*)—Cracked nipples successfully treated without inconvenience to the mother or nursling with the assistance of orthoform (*Ibid*). Sage of Bordeaux reports the first case in France of the birth of a healthy child at term, the mother having commenced to menstruate at 12 years and eight months, and conception occurring one month later, delivery at thirteen and a half (*Sem. Méd.*, February 9).—Negative results of lumbar puncture in chronic hydrocephalus reported by Raczynski; twenty-six cases. Slight transient relief was obtained only in five cases consecutive to epidemic meningitis (*Przeglad lekarski*, 1897, 33).—Inflammation of the navel and penis in an infant after circumcision, found to contain the Loeffler bacillus, and cured with antidiphtheria serum (*Ibid.* 51).—The intensity of the mercurial treatment required in syphilis varies not only for each individual, but for different lesions on the same individual. Instance reported in which hypodermic injections of five centigrams

calomel promptly cured all the lesions except one on the lip, which was not affected by the treatment until the dose was doubled, when it also vanished (*Ann. de derm. et de Syph.*, February).—Case of pulmonary gangrene consecutive to ether narcosis reported by Dumas, in patient affected with chronic bronchitis (*Journ. de Méd. Int.*, November, 1897.)

British Army Medical Department Report for the Year 1896.—The strength of the European troops of the British Army serving at home and abroad in 1896 was a little over 200,000 men, of whom rather less than one-half were on duty at the home stations; 75,000 served in India, 8000 in Malta, 4000 each in Gibraltar, Egypt and South Africa, with smaller commands in various other parts of the world. The rate of constant sickness for the whole army was 60.71 per thousand men, with 8.14 deaths and 16.26 discharges for disability. The average sick time to each soldier was 22.22 days and the average duration of each case of sickness 23.61 days. Among the troops serving in the United Kingdom the rates of sickness and mortality were lower than usual. The constant sickness was 38.52 per thousand of strength with 3.58 deaths and 21.20 discharges, the average sick time to each soldier being 14.10 days and the average duration of each case 21.85 days. Our United States rates for the same year, with the exception of the death rate, were considerably lower than these. We had 33.97 constantly sick, with 5.44 deaths and 10.15 invalided per thousand of strength, the sick time to each man being 12.43 days and the duration of each case 11.19 days. As regards the smaller death rate of the British home service, it is to be observed that if men suffering from such a disease as consumption are promptly discharged the death rate is lessened at the expense of the rate of invaliding. Not the death rate alone, but the death rate added to the discharge rate, is the measure of the disabling character of the sickness affecting an army. The admissions for enteric fever numbered 94 and the deaths 22, an exceedingly high rate of fatality, but the mortality rate per thousand of strength was low, .21 as compared with our rate of .63. At Pembroke Dock there was a well marked outbreak. The water closet, sink and bath of a building in which a fever case was undergoing treatment, emptied into a common drain beneath which was a lead pipe, corroded and leaky, supplying drinking water to the hospital. Twenty cases with two deaths occurred among persons using the hospital water-supply; and the last case was taken on sick report seventeen days after the condition of the water-supply pipe was discovered and remedied. The occurrence of 806 cases of malarial fever and 2 deaths from remittent fever is accounted for by "the return of troops from service abroad." The only reference to malaria of indigenous origin is found in a remark on the sanitary condition of Lincoln: "A few cases of ague, due to local causes, were noted during the year." The fens of Lincolnshire, as is well known, were in former times the headquarters of the malarial parasite in England. The constant sickness from all forms of venereal disease was 13.94 per thousand of strength as compared with 5.26 in the U. S. Army.

The number of recruits inspected during the year was 54,574, of whom 423.48 per thousand were rejected as unfit for service; the rejections during the same year by U. S. recruiting officers were 371.65 per thousand examined. Nearly one half of the accepted recruits were under 19 years of age; 1372 were boys under 17 years of age. Omitting these boys the average age of the recruits was 19.3 years, the average height 5 feet 5.9 inches and the average weight 125.8 pounds.

The highest rates of constant non efficiency from sickness among troops serving abroad were 93.85 per thousand of strength in India and 87.57 in China; the lowest 26.86 in Bermuda and 28.36 in Canada. The lowest rate of discharge for disability was 31.29 in China, with 61.22 sent home as invalids. The longest sick time to each soldier of the command was 34 35 days in India, the shortest 9.83 in Bermuda. No yellow fever was reported during the year from Barbadoes or Jamaica, and only six cases of cholera occurred among the troops in Alexandria and Cairo, Egypt, although the civil population suffered severely. Both cities were placed "out of bounds" during the prevalence of the disease.

In India there was an increase in the sickness from enteric fever, other continued fevers and cholera; malarial fevers accounted for one-fifth and venereal diseases for one-third of the reported cases of sickness. Enteric fever caused 1795 admissions into hospital, or 25.5 per thousand of strength, with 445 deaths, or the very large death rate of 6.31. The largest number of cases occurred at Quetta, 140 admissions with 22 deaths. The water-supply of this station is brought in pipes from an uninhabited mountain district thirteen miles distant. The febrile outbreak was attributed to exposure in the insanitary brothels and drinking shops of the neighboring native town. At some of the posts the type of the disease is said to have been very severe, as although the sufferers were very young men, their constitutions had already been undermined by syphilis, and their chances of recovery thus greatly lessened. The pinking of the water-supply by potassium permanganate was employed as a preventive measure at several posts during the outbreak, but without satisfactory results. In fact, at Agra enteric bacilli were found in a flourishing condition in the pink water. "This," says the reporter, "was a great disappointment to me, as I was beginning to think that a panacea had been found for this scourge. The situation was now desperate, so after consultation with Professor Hankin, we commenced making experiments with micrococcus ghadiallii, found by him to be antagonistic to the enteric microbe. This micrococcus is quite harmless to human beings, so I had no hesitation in trying it as the enteric cases were increasing daily. It was first tried at the swimming bath at the Fort, which was found to be infected with the enteric microbe. In four days there were none. About the same time it was taken into use at the Agra Club; then the water supply at the Fort was treated, with an almost immediate cessation of cases, and lastly the water of the whole cantonment, and the disease at once began to ameliorate in a very marked manner. From the time the water-supply was treated with the micrococcus the number of admissions fell rapidly. I have not been able to follow out the research desirable in this line, as Professor Hankin has left the station for the purpose of investigating the plague at Bombay, and I am thus deprived of his assistance. The matter is, I think, well worth further investigation." Of the several measures adopted for sterilizing drinking water, with a view to the prevention of water-borne diseases the most efficient was boiling. Cholera caused 70 admissions and 63 deaths during the year. The constant sickness from malarial fevers numbered 10.15 per thousand of strength. The admission rate for venereal diseases was 511.6 per thousand and the constantly sick 44.87, representing a loss of 3162 men to the efficient strength of the Indian command. The hypodermic injection of mercury was freely resorted to with excellent results. "This treatment enables many men, who would otherwise be in hospital, to perform their usual duties; it brings the patient more quickly than the old method under the influence of the drug and does not derange the digestion." The result of the voluminous discussions in and outside Parliament on venereal diseases ended in the promulgation of the amended Cantonment Act, which gives greater power to local authorities over the prostitute population, but falls short of the registration and periodical examinations which many experienced officers advocated. It is noted that no case of bubonic plague occurred among the garrison of Hongkong, although more than 1100 of the native population died of this disease.

Several valuable papers are appended to this report, among others a résumé of the progress of hygiene during the year 1897 by Surgeon-Colonel J. Lane Notter, who gives a summary of Prof. V. C. Vaughan's paper on the prevention of tuberculosis, read at the Twelfth International Congress of Medicine, and discusses the progress made in sewage disposal by biologic methods at Exeter and Sutton. A paper on the operations performed at the Royal Victoria Hospital, neatly illustrated by some good skiagraphs of fractured bones. Surgeon-Lieut.-Colonel, J. A. Gormley reports on the operations of the forces in Southern Africa, and Major-General T. Mannsell, C. B., gives an interesting account of the difficulties experienced by the medical department in the Chitral Relief Expedition. The emergency ration known as "Armebis" was condemned as not being safe. Many of the tins "went bad," and one man nearly died with symptoms of ptomain poisoning after eating the contents of one. Even when good the biscuits were a possible cause of diarrhea owing to imperfect milling of the envelope of their wheaten constituent. Lieut. D. W. Sutherland gives the particulars of a number of cases of wound by the Lee-Metford rifle bullets. These wounds were generally characterized by slight shock, slight pain, free hemorrhage, simple perforation of bone and rapid healing. The natives reported that those shot in the head died at once on the field; those wounded in the abdomen often died on the field, but some reached their homes to die a few days later; all the others recovered promptly. Surgeon-Lieut.-Col. A. T. Sloggett reports on the Dongola Expedition, the chief medical interest of which centers in a

typhoid fever epidemic and an invasion of the Command by cholera. A full account of the proceedings of the Seventh Annual Session of the Association of United States Military Surgeons held at Columbus, Ohio, in May, 1897, is given by Deputy Surgeon-General W. S. Oliver, and a report on the Twelfth International Medical Congress held at Moscow in August, by Surgeon-Colonel W. F. Stevenson, in which he gives prominence to Surgeon-General Van Reypen's proposition for a hospital or ambulance ship in the care of the wounded of modern naval wars, and to Surgeon-General Sternberg's report on operations for the radical cure of hernia in the United States Army.

Decision Concerning Osteopathy.—The following is a decision concerning osteopathy, by District Judge H. H. Rolapp, of Utah.

State vs. William Hartford: The defendant is charged by an information with practicing medicine without a license from the State Board of Medical Examiners.

Section 1736 of the Revised Statutes provides that "Any person practicing medicine . . . within this State without holding . . . a license shall . . . .be deemed guilty of a misdemeanor."

Section 1737 provides that "Any person shall be regarded as practicing medicine within the meaning of this title who shall treat, operate upon, or prescribe for any physical ailment of another for a fee."

The defendant admits having manipulated with his hands upon persons for physical ailments, for a fee, and without a license; but insists that inasmuch as he uses no medicine or surgical instruments, or any other agencies except his naked hands, that he does not come within the prohibited class named in the statute. He does not hold himself out as a doctor, physician or surgeon, but denominates himself a diplomat of osteopathy. He further insists that his science does not belong to any recognized school of medicine; or, if it does, that the present State Board of Medical Examiners is not legally constituted, it being admitted that no osteopathist is a member of such Board—while Section 1728 of the Revised Statutes provides that said Board "shall consist of seven members, who shall be representatives of the various recognized schools of medicine."

The latter point, I apprehend, can not be determined in this case. The whole inquiry, then, recurs to whether the defendant is practicing medicine within the meaning of the act.

Counsel for defendant invites attention to the case of Smith vs. Lane (24 Hun., 632) which seems to be in point, if the statutes upon which that decision was founded were as broad as ours. But in the New York statute it is simply provided, in specific terms, that the practice of medicine or surgery should be a misdemeanor, unless authorized by a certificate setting forth such person's qualifications to practice all of the branches of the medical arts. Under that provision it was undoubtedly the duty of the Court to interpret the words "practice of medicine and surgery" in the common acceptation of those words; and they therefore said "the practice of medicine is a pursuit very generally known and understood, and so also is that of surgery. The former includes the application and use of medicine and drugs for the purpose of curing, mitigating or alleviating bodily diseases; while the functions of the latter are limited to manual operations usually performed by surgical instruments or appliances."

That is undoubtedly a good definition of the words in the statute then before the Court. But our statute goes farther, and says that, "any person shall be regarded as practicing medicine . . . who shall treat, operate upon, or prescribe for any physical ailment of another for a fee." The word "treat" as defined by Webster, in this connection, is synonymous with "manipulation," "handling," "mode or manner of checking and destroying disease." That is exactly what the testimony in this case shows the defendant did; and the legislature must have intended that the words thus used by them should have some significance, and be used in connection with "ailments." There is no suggestion in the section that the word "treat" referred to treating with medicine, or with any other specific agencies of a similar kind. If such treatment was done by the naked hands and for the purpose of curing ailments of another, and was done for a fee, it seems to come logically within the intention of the statute, which defines such treatment, handling or manipulation as practicing medicine. That the section is sweeping, I admit; but the power of the legislature to thus enact is undoubtedly possessed.

My attention was also called to the case of State against Eastman, decided in Indiana. While I can not fully concur with the learned judge in the interpretation placed upon the statute then under consideration by him, yet all he suggested was that the words "other agencies," named in that statute, referred to drugs and medicines, and as osteopathy does not include the use of such agencies the practitioners of that science did not come within the prohibition of that statute. Granting the premises in regard to the interpretation of the statute, of course the conclusion was right; but in addition to that the Indiana statute only prohibited the direction or recommending for use by another of drugs, medicines or other agencies, but said absolutely nothing about the personal treatment by a person upon another for the curing of ailments. Such treatment is directly covered by our statute.

I think the decision in Illinois, in the case of Eastman against The People is the most valuable, because it concerns itself with a statute identical with ours. Says the court in that case: "It appears that the appellant was engaged in the practice of 'the profession of osteopathy' as it is termed in the briefs; that he had an office where he received patients, and that he visited patients at their homes; that he advertised his system and his skill therein, and that he professed ability to understand and treat human ailments intelligently and successfully. So far as shown his treatment consisted wholly of rubbing and manipulating the affected parts with his hands and fingers and by flexing and moving the limbs of the patient in various ways. It is insisted on his behalf that because he used no medicine or instruments he is not amenable to the statute, which reads: 'Any person shall be regarded as practicing medicine within the meaning of this Act who shall treat, operate on or prescribe for any physical ailment of another.' It is urged on behalf of the appellant that this provision must receive a reasonable interpretation and to 'treat' implies the use of medicines or drugs of some sort. This is not so necessary. Many of the minor operations are effected without the use of instruments by mere pressure, extension and flexing. This of course implies some knowledge of anatomy and some skill. It is said by counsel that if the statute reaches this case, it must include treatment by Turkish baths, massage and the like. We think not. The evidence shows that the appellant claimed to be competent to treat and cure numerous diseases. He represented himself as a graduate of the new school of ostheopathy and qualified to examine and treat all who might seek his aid. Herein he differs from those who give Turkish baths, massage and the like. He professes to be able to diagnose and advise in respect to a long list of diseases, and to furnish discriminating and efficient treatment to those who may come to him, and while he may rely wholly upon manipulation, etc., yet he professes to have skill and judgment in these methods so as properly to adapt the treatment to each case, giving it what is appropriate in amount, and with repetition at such times and to such extent as may be dictated by his knowledge and experience. By his skill in the use of his peculiar remedy or methods he claims to be competent to relieve and cure various ailments, and therefore he invites patronage.

"Medicine is the art of understanding diseases and curing or relieving them when possible. It is that branch of physics which relates to the healing of diseases. This art is not restricted to any particular methods or remedies. These are innumerable, considering what are used and have been discarded. We are of opinion the proofs bring appellant within the Act and that he is liable to the penalty imposed for practicing medicine without a license."

I think the same reasoning applies in the case at bar.

A number of other questions were raised at the trial, but I consider it wholly immaterial whether the legislature of Missouri has declared osteopathy not to be the practice of medicine, because that does not bind our legislature. Nor can I consider here the benefit the defendant may have been to the citizens of this community (which fact I do not doubt), or that the medical fraternity are the instigator of this prosecution.

The legislature is the proper tribunal that should be applied to in permitting the engaging in any science or art that will be of benefit to humanity; but until they do, or while they have specifically enacted laws to the contrary, I am simply called upon to interpret the law as I find it; and I can come to no other conclusion than that the treatment or manipulation engaged in by the defendant requires him to take out a license. Having failed to do so he has violated the statute. I must therefore find the defendant guilty as charged.

Louisville.

Society.—The Kentucky Midland Medical Association held its ninth quarterly meeting on April 14. The following program was observed: "Acute Nephritis," J. R. Ely of Frankfort; "Cholera Infantum," S. J. Anderson of Midway; "Gonorrhea," U. V. Williams of Frankfort; "Surgery of the Uterus and Adnexa, per Vaginam," W. H. Wathen of Louisville;

"Ether Anesthesia in Subjects Suffering from Bronchitis," Thad. A. Reamy of Cincinnati; "Asthma," J. M. Rees of Cynthiana; "The Serum Test of Typhoid Fever," D. J. Healey of Lexington and C. C. Lewis of Stamping Ground; "Quinsy and Its Treatment," J. A. Stucky of Lexington and J. M. Ray of Louisville; "Obstinate Neuralgia of the Mastoid," Robert Sattler of Cincinnati and John E. Pack of Georgetown; "Acute Nephritis," C. W. Kavanaugh of Lawrenceburg; "Cholera Infantum," T. M. Beard of Shelbyville; "Gonorrhea," John C. Lewis of Georgetown; "Surgery of the Uterus," Louis Frank of Louisville; "Ether Anesthesia," T. H. Willis of Shelbyville; "Asthma," S. E. James of Frankfort. Dr. W. E. Sleet, President, Medway, Ky. Dr. J. B. Powers, Secretary, Lawrenceburg.

MEDICO-CHIRURGICAL SOCIETY.—The regular meeting of this Society was held on the 8th of April, as the guest of Dr. Wm. Bailey, the title of whose essay was "The Inadequate Kidney."

GRANT.—Dr. H. Horace Grant is quite seriously ill as the result of septic inoculation at an operation.

HEALTH OFFICE.—The weekly death report shows 54 deaths, the greatest number, 5, being due to phthisis. Thirty-seven were white, 17 colored, 34 males and 20 females. Typhoid fever caused 4 deaths.

Cincinnati.

AT THE REGULAR MEETING of the Academy of Medicine April 4, Dr. H. W. Bettman read a paper on "Enteroptosis." The author's studies and measurements were taken from hospital cases during a period of over two years. The discussion showed the opinion of the society to be against the establishment of this trouble as a clinical entity, and especially against the stand taken by the author of the frequent accompanying ptosis of the right kidney. Dr. Joseph Ransohoff reported a case of inguinal hernia operated on by him, in which on opening the sac a milky fluid to the amount of about a pint, apparently from the abdominal cavity, escaped. The examination of the fluid showed it to be chyle. There were no symptoms of any trouble with the thoracic duct and the ascites had not been of sufficient quantity to attract the attention either of the putient or his attending interne. On the contrary, he seemed to be in the best of health, entering the hospital only to have his hernia operated upon.

THE CHANGES in the administration of city affairs will undoubtedly result in the deposition of Dr. John M. Withrow, one of the most competent health officers the city has ever had. Though serving but a short time he will be held in grateful remembrance for his untiring efforts in quarantining the city against yellow fever last fall, and especially for his recent active crusade against diphtheria and consumption. His map of the city illustrating the prevalence of these two diseases, show that contrary to general opinion the heart of the city, by far the most densely populated, is the most healthy as far as these two diseases are concerned, and that cases are far more numerous along the river and in the outlying districts.

THE CINCINNATI HOSPITAL will show that admissions for treatment were far less numerous in 1897 than the previous year by over four hundred; this falling off is not due to less applications but to a more rigid system of examination and inquiry as to their circumstances and right to the city's charity.

THE PHYSICIANS of Campbell County, Ky., just across the river, have volunteered their services to the medical director of the G. A. R. encampment for use during the meeting here of September next.

Detroit.

WAYNE COUNTY MEDICAL SOCIETY.—At the regular meeting of this Society held on April 7, Dr. E. D. Rice of Flint, Mich., read a very able paper on "The Physiological Functions of the Liver and their Relations to the Digestive Process." The Doctor reviewed the histology and physiology of the liver, and showed how intimately the disturbances of this organ are connected with the disturbances of the stomach and duodenum. The most interesting function of the liver referred to by the author is the power it has of eliminating toxins from the system, produced in the intestinal canal or by the process of metabolism in any part of the body. Dr. Fritz Maass, illustrating the wonderful resistance of this organ to disease, recited a case recently occurring under his own observation. The patient was a man of 50 years; previous history negative; had been suddenly, while in apparent good health, seized with a severe pain in the region of the liver. The attending physician ascribed the pain to gall-stones and administered a hypodermatic injection of morphin, which relieved the suffering at once and the man returned to his work. In exactly eight days the pain returned and was again relieved by the needle. This was repeated in another week; but at the fourth attack, some twenty-one days after the first attack, the pain was more agonizing and the morphin failed to relieve. Chills, fever and unconsciousness supervened and the man died. At autopsy the liver presented no apparent evidence of disease sufficient to cause death, the stomach and bowels appeared healthy, a few very small gall-stones were found in the gall-duct, and there was a slight congestion of the meninges of the brain. Blood from the heart and sections of the liver were preserved and from these cultures were made. Streptococci in pure cultures were found in abundance from both the liver and the blood, leading to a diagnosis of pyemia with origin in the liver.

HEALTH REPORT for the week ending April 8; Number of cases of diphtheria remaining, 2; scarlet fever, 14; total deaths, 103; under 5 years, 37; births, male 42, female 46.

Philadelphia.

STUDENTS AND THE WAR MEDICAL STUDENTS who are about to graduate at the University of Pennsylvania are clamoring for early final examinations in order that they may enlist in the hospital corps of the army and navy should their services be needed in a war with Spain. Dr. M. T. Stout, who formerly served in the United States Navy, recently put the question to the class as to how many would enlist in the hospital corps and two-thirds of the class stood up. The source of inspiration in the movement is to avenge the sad death of Osgood the athlete of the University who lost his life in Cuba battling for Cuban independence. Professor John Guitéras, lecturer on pathology at the University and a prominent leader in the Cuban junta, is watching the enthusiasm of the class with much gratification.

CHARITY ABUSE IN PHILADELPHIA.—At a meeting of the Medico-legal Society of Philadelphia plans were discussed relative to influencing legislation to regulate the use of free hospitals by the community at large. The object of the society is to first organize the medical profession through the influence of the County Medical Society and afterward the State Medical Society. Another meeting will be held this month and recommendations presented looking to the introduction of the subject into the County Medical Society. Dr. J. H. Dripps is president of the society.

VACCINATION SAID TO HAVE CAUSED DEATH.—Alice Dempsey, a girl six years of age, was recently vaccinated and it is said that septicemia subsequently developed from the effects of which she died a few days later at the Germantown Hospital.

THE TRUSTEES of Jefferson Medical College have divided the chair left vacant by the death of Professor Parvin and have elected Dr. E. E. Montgomery professor of diseases of women and clinical gynecology and Dr. E. P. Davis professor of obstetrics.

A CASE of smallpox of mild type and unknown origin was discovered in this city early last week and at once removed to the Municipal Hospital and the premises disinfected. The city had been free from this disease since 1895 and has had no epidemic of smallpox for nearly ten years.

THE TRUSTEES of the Medico-Chirurgical College have petitioned the State legislature to amend their charter so that they may add a department of pharmacy as well as a department of dentistry, and become duly authorized to confer the degree of graduate in pharmacy as well as that of doctor of dental surgery and of medicine.

THE PROPOSED Health Protective Hospital, or pay hospital for contagious diseases, it is hoped will soon be an accomplished fact, as active efforts are being put forth to obtain the much-needed funds for ground and buildings. Dr. J. Madison Taylor is treasurer and Judge William N. Ashman president of the board of trustees.

THE POLYCLINIC HOSPITAL and School for Graduates in Medicine announces a week in diagnosis, beginning May 9. Lectures and demonstrations in the clinics and laboratories of the Polyclinic on various special topics, including the Clinical Use of the Microscope, Chemic and Bacteriologic Methods and X-Ray Examinations, it is thought will interest experienced practitioners as well as recent graduates. Dr. Charles K. Mills has been elected to the newly created chair of neuro-pathology, having resigned from the chair of nervous diseases, which was abolished.

Washington.

HEALTH OF THE DISTRICT.—The report of Health Officer Woodward for the week ended April 2, shows the total number of deaths to have been 93, of which number 52 were white and 41 colored. Among the principal causes of death were: nervous diseases, 14; circulatory, 7; genito-urinary, 10. One death from diphtheria and one from whooping cough. A case of smallpox was reported at Freedman's Hospital. The patient, a colored boy, aged 20 years, left Knoxville, Tenn., on the 14th ultimo, and with three companions worked his way to this city on a freight train. He was taken sick on reaching this city and was admitted to the wards of Freedman's Hospital, whence he was removed to the smallpox hospital, after the nature of his disease was determined. There were three cases of smallpox on the "pest-boat" at Knoxville, Tenn., when he left. There were 28 cases of diphtheria and 55 cases of scarlet fever under treatment at the close of the week. The Health Officer has placed Freedman's Hospital under strict quarantine and has carried out the most approved methods of disinfection.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 278th meeting of the Society was held on the 18th ultimo, at the residence of Dr. Deale. Dr. H. L. E. Johnson presented the essay of the evening, "Vaginal Hysterectomy for Procidentia," case and specimen. He reported a modification of his own for vaginal hysterectomy in which he combines the clamp and suture methods. The broad ligaments are clamped in the usual way and the anterior and posterior vaginal flaps are stitched to the peritoneum and broad ligament, the flaps being then stitched together. He claims by so doing that subsequent vaginal prolapse would be avoided. An interesting discussion followed. At the meeting held April 1, Dr. E. E. Morse was elected to membership.

SEWAGE DISPOSAL.—Commissioner Black has, in reply to a request by Senator Gallinger, written the latter a brief description of the proposed sewage-disposal system of the District of Columbia, and recommends the reclamation of the Anacostia Flats.

HOSPITALS AT OLD POINT.—Assistant Secretary Meiklejohn of the War Department is authority for the statement that the removal of the hotel Chamberlin and the Hygeia hotel is no part of the present project of preparations for the National defence at Fort Monroe, Va. These large hotels were built on the Government reservation at Fort Monroe with the condition that the Government may, without liability for a claim for damages, remove them in case of necessity in case of war. A strong argument for their retention in case of war is that the two large buildings would be of great service as hospitals.

ANNUAL MEETING OF THE DISTRICT ASSOCIATION.—At the regular stated meeting of the Medical Association of the District of Columbia, held on the 2d instant, the following were elected: President, Dr. George M. Kober; vice-presidents, Drs. Cuthbert and L. Elliot; secretary, J. R. Wellington; treasurer, Frank Leeck; councilors, Drs. Mayfield, T. R. Stone, Acker, McLain, Ober, Carr, D. O. Leech, H. L. E. Johnson and Holden; censors, Drs. Woodward, Cook and Glazebrook; delegates to the meeting of the AMERICAN MEDICAL ASSOCIATION, to be held in Denver Col., Drs. Heiberger, Stone, H. L. E. Johnson, Crosson, Portman, Moran, Belt, Kober, Koones, Reyburn, Kleinschmidt, Middleton, Carr, Shouds, Franzoni, Hazen, S. S. Adams, Myers, Huinche, Cook, Brehend, Bovee, L. Eliott, D. O. Leech, Bowen, Mackall, Jr., Wellington, Barker, Fox, J. Eliot, Butler, Glazebrook, Godding, Cole, Hunt, Sillers, J. D. Morgan, Hegar, Duffey and Woodward. The following new members were elected: James T. Arwine, Grafton D. P. Bailey, William T. Burch, DeWitt C. Chadwick, James W. Hart, Isabel Haslup, J. M. Heller, T. Y. Hull, William P. Mills, John B. Nichols, John L. Norris, Jesse N. Reeve, William N. Suter, Joseph S. Wall and William Edward West.

HOSPITAL ABUSES.—A special meeting of the Medical Association was called on March 15, to consider the report of the Standing Committee which has been investigating the matter of Hospital Abuses. The Association is determined that all abuses of this character shall be checked, and after hearing the partial report of the Standing Committee, the following was adopted:

WHEREAS, The object of the amendment adopted by the Medical Association of the District of Columbia, May 16, 1897, is, and always has been to check the growing abuse of Medical Charities in this city, and

WHEREAS, It appears from the report of the Standing Committee that the Staffs of several Medical Charities have not complied with these amendments, be it

Resolved, That the Standing Committee be instructed to notify the individual members of the staffs of such Medical Charities that unless satisfactory evidence be furnished on or before April 1, 1898, that the letter and spirit of these amendments are complied with, the Standing Committee will proceed to arraign the members of the various staffs for violation of these rules, and to report its findings to this Association.

In pursuance of the above, the Standing Committee, through its Secretary has sent to each physician who is connected with one or more hospitals, the following queries, and have requested a prompt reply: 1. Do you require evidence before attending a patient in the medical charity with which you are connected, that the applicant for relief, except in emergency cases, has furnished a certificate as required in Article 1 and 2 of the Amendments of the Medical Association? 2. What are the exact methods pursued by the staff of the institution with which you are connected to limit gratuitous services to the indigent sick? 3. Does the hospital with which you are connected grant you and all other members of the Medical Association the privilege of attending private patients occupying private rooms? 4. Do you, as a member of the medical staff of the Hospital with which you are connected, when attending medical or surgical cases in private pay rooms, insist upon proper payment for your services, except when such patients are clearly unable to pay for the same? Do the Hospital authorities permit you to do this, and what are the methods pursued to sustain your demands?

MEDICAL SOCIETY.—At the meeting of the society held on the 6th instant, Dr. Charles W. Richardson read the essay for the month, entitled "The Acute Mastoid Abscess." The following were elected to membership: Drs. E. Barry, A. W. Boswell, L. A. French, G. W. Foster, M. Griffith, A. B. Hooe, M. D. Magee, H. S. Medaford, M. G. T. Motter, J. B. Nichols, L. S. Savage, W. P. Tucker, J. R. Tubman. The following were elected members by invitation: Drs. A. H. Glennan, Marine Hospital; C. H. White, U. S. N.; J. B. Parker, U. S.

N.; P. Fitzsimmons, U. S. N. A committee consisting of Drs. T. C. Smith, George N. Koeber and W. W. Johnston, recently appointed by the society, read congratulatory resolutions to the president, Dr. Samuel C. Busey, on his completion of fifty years practice of medicine.

DR. BUSEY'S FIFTIETH MEDICAL ANNIVERSARY.—At Dr. Samuel C. Busey's fiftieth anniversary of his graduation from the University of Pennsylvania, Friday evening, April 8, his residence was thronged with admiring friends representing the medical profession, the Senate and House of Representatives, Supreme Court, U. S. Army and Navy and Marine-Hospital Service, eager to extend their congratulations and show their appreciation of the man who stands first in his profession and first in the hearts of all who know him.

Hospitals.

MT. SINAI HOSPITAL, NEW YORK, is a a non-sectarian charity that has been in operation as a hospital since June, 1872, at its Lexington avenue site. These quarters have been outgrown and a new plot of land, comprising about twenty-five city lots, has been purchased on 100th and 101st Streets, fronting Central Park nearly the whole block, with the exception of the Madison Avenue front. This plot, very desirably located for hospital purposes, is valued at $350,000.——The plans for a new medical building at the Johns Hopkins Hospital, Baltimore, have been completed. The physiologic and chemic laboratories will be removed from the university to the hospital grounds. One floor of the new building will be devoted to pharmacology.——By the will of George S. Pepper of Philadelphia, who died in 1890, several hospitals become beneficiaries. The University Hospital receives $19,750; Presbyterian Hospital $18,500; Jefferson College Hospital $18,500; Orthopedic, Charity, St. Joseph's, Children's, St. Christopher's and Maternity Hospitals $9,250 each. Dr. William Platt Pepper, John S. Gerhard and James B. Leonard, who are the trustees for the estate, report that there is a total increase of the estate since the testator's death of $199,836.84.

Colleges.

THE MEDICAL COLLEGE of Syracuse University, N. Y., is to receive $1000 for enlarging the medical library.——The following commencements of medical colleges, with the number of graduates, are noted: April 7, Baltimore University School of Medicine, 54; April 5, Baltimore Medical College, 17; April 4, Birmingham Medical College, 9; April 1. Medical Department State University of Georgia, Augusta, 27; March 28, Missouri Medical College, St. Louis, 85; March 28, College of Physicians and Surgeons, Kansas City, Kan., 24; April 1, Medical College of South Carolina, Charleston, 14; April 5, Ohio Medical University, Columbus, 95; April 6, Iowa College of Physicians and Surgeons, Des Moines, 21.

Relief for Shawneetown Sufferers.—The General Committee appointed by the Hon. Carter H. Harrison, mayor of Chicago, to take measures for the relief of the sufferers from the disastrous flood at Shawneetown, Ill., has selected the undersigned as a sub-committee to solicit aid from the physicians of Chicago. We know too well the kind and charitable motives governing our profession to think it necessary to do more than point out that this calamity which has befallen the unfortunate people of Shawneetown demands immediate relief and we respectfully request that contributions of money be sent immediately to Dr. A. R. Reynolds, Commissioner of Health, City Hall. Checks should be made payable to Treasurer Relief Committee.

JOHN B. HAMILTON, M.D.
FRANK BILLINGS, M.D.
J. H. ETHERIDGE, M.D.

Chicago, April 11, 1898.

CHANGE OF ADDRESS.

Andrews, G. M., from St. Louis, Mo., to Stella, Neb.
Anderson, F. E., from Iowa City to 130 W. 13th St., Davenport, Iowa.
Allen, F. H., from Iowa City to Shelby, Iowa.
Becker, B. A., from St. Louis, Mo., to Elgin, Ill.
Curtis, A. M., from 2842 Dearborn St. to 226 25th St., Chicago.
Cassidy, W. W. Jr., from Chicago to Wabasha, Minn.
Dennis, E. J., from Kansas City, Mo., to 114 Dearborn St., Chicago.
Eidenmuller, W. C., from 14 Grant Ave. to 630 Green, San Francisco.
Forsythe, E. A., from 64 W. Huron to 348 Franklin St., Buffalo, N. Y.
Franklin, G. W., from Des Moines to Jefferson, Iowa.
Giles, G., from Keokuk to Stiles, Iowa.
Gooch, W. H., from St. Louis to Goldsberry, Mo.
Hill, C., from Indianapolis to Frankfort, Ind.
Hooper, V. J., from 2021 Jefferson to 1486 Mack Ave., Detroit, Mich.
Hill, W. H., from Keokuk, Iowa, to New Castle, Mo.
Johnston, E. A., from Champaign to Danville, Ill.
Jones, P. R., from Nashville, Tenn., to Frankfort, Ala.
Johnson, L. M., from 503 W. 4th St. to 629 W. 4th St., Williamsport, Pa.
Kirby, R., from Detroit to Hermansville, Mich.
Kenefick, T. A., from New York to Newport, R. I.
Kneedler, W. S., from San Diego, Cal., to West Point, N. Y.
Lenty, A., from Des Moines to Rock Rapids, Iowa.
Law, J. C., from Summerfield to Topeka, Kan.
Luburgh, J. M., from Stafford to Elba, Ohio.
Malott, J. D., from Indianapolis to Amboy, Ind.
Meek, J. H., from Columbus to Glencoe, Ohio.
Mahon, J. B., from Pittston to 58 N. Franklin St., Wilkesbarre, Pa.
Martin, W. C., from Detroit to Emmet, Mich.
Mathewson, E. H., from Chicago to N. Manchester St., Battle Creek, Mich.
Philips, W. S., from Columbus to Belle Center, Ohio.
Rollins, F. H., from White Rock, S. D., to West Salem, Wis.
Replogh, J. A., ftom Iowa City to Centerville, Iowa.
Rugg, D. F., from Saranac Lake, N. Y., to Hartland, Vt.
Ross, G. H., from Richmond, Va., to Durham, N. C.
Snyder, J. F., from Iowa City to Hawkeye, Iowa.
Schneider, A. J., from 120 N. Illinois St. to 592 W. Morris St., Indianapolis, Ind.
Scholtes, T. W., from Chicago to Reade's Landing, Minn.
Stout, J. C., from San Francisco to Oakland, Cal.
Tabor, F. A., from Indianapolis to Terre Haute, Ind.
Wine, R. E., from Richmond to Quicksburg, Va.
Whiting, A. D., from 1223 Spruce St., to 1523 Spruce St., Philadelphia.
Zeller, H. R., from Columbus to Beansville, Ohio.

LETTERS RECEIVED.

Ashmead, Albert S., New York, N. Y.; Allport, Frank, Chicago; Armour & Co., Chicago.
Bonwill, W. G. A., Philadelphia, Pa.; Burroughs Wellcome & Co., London, Eng.; Breuer, C. H., Hallettsville, Tex.; Brewster, Quincy E., Boston, Mass.
Chesterman & Streeter, Philadelphia, Pa.; Carabana Co., The, New York, N. Y.; Crawford, S. K., Chicago; Clement, W. R., Princeton, Ky. Ellis, H. Bert, Los Angeles, Cal.; Ewing, S., Salt Lake City, Utah; Egbert, J. Hobart, Holyoke, Mass.
Forsythe, Jessie P., Winfield, Ill.; Frame Food Co. (Ltd.), London, Eng.; Frankish, John K., Philadelphia, Pa.; Fairchild, P. H., Passaic, N. J.; Freeman, J. W., Lead, S. D.
Gerstein, Maurice, Boston, Mass.; Gifford, H., Omaha, Neb.; Gibson, Maris, Wilkesbarre, Pa.; Gapen, Clarke, Madison, Wis.; Gilbert, L. L., Pittsburg, Pa.
Hertzler, A. E., Halstead, Kan.; Hall, C. Lester, Kansas City, Mo.; Harvey Co., The G. F., Saratoga Springs, N. Y.; Hooper, Henry, Chicago.
Jones, John F. & Co., Paris, France.
Kastle, Martin, South Beno, Ind.; Krüger & Co., Leipzig, Germany.
LeFevre, Edwin, Boston, Mass.; Lewis, Robert C. M., Centerburg, Ohio; Lyman, F. A., Madison, Wis.
Mowery, H. A., Marietta, Pa.; Mercer, A. C., Syracuse, N. Y.; McLaren, Archibald, St. Paul, Minn.; Morse Adv. Agency, Lyman D., New York, N. Y.; May, J. W., Kansas City, Kan.; Mattison, J. B., Brooklyn, N. Y.; McClelland, T. M., Chicago; Maddox, W. H., Columbus, Ohio.
Patton, Ella M., Quincy, Ill.; Palmer, H. C., Utica, N. Y.; Palmer, F. A., Chicago; Pneumachemic Co., The, Cincinnati, Ohio; Postum Cereal Co. (Ltd.), Battle Creek, Mich.
Rawling, J. A., El Paso, Texas.
Sander, Enno, St. Louis, Mo.; Solomon, Leon L., Louisville, Ky.; Spencer Lens Co., Buffalo, N. Y.; Scott, W. I., Kokomo, Ind.; Stearns, F. & Co., Detroit, Mich.
The New York Pharmacal Association, New York, N. Y.; Turnbull Thomas, Jr., Allegheny, Pa.
Wellner, H., Concord, N. H.; Woldert, E. A., Philadelphia, Pa.; Western News Co., The, Chicago; Wilkes, B. A., St. Louis, Mo.

Trade Pamphlets.

Diabetes Mellitus, An Old Remedy for. Thomas Pharmacal Co. New York.
Edison Manufacturing Co's. Catalogue, New York.
Eosot and Geosot. Fischer Chemical Importing Co., New York.
Extracts Concerning Radlauer's Antinervine. S. Radlauer, Berlin.
Formaldehyde. Fries Bros., New York.
Galvano-Faradic Manufacturing Co's. Catalogue. New York.
How to Obtain a Patent. Copp & Co., Washington, D. C.
Hysteria, etc., Battle & Co., St. Louis.
Practical Therapeutics, Vol. 1, No. 1. H. K. Mulford Co., Philadelphia.
Sanose, etc. Schering & Glatz, New York.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from April 2 to 8, 1898.

First Lieut. George Rauchfuss, Asst. Surgeon, resigned April 2, 1898.
First Lieut. Bailey K. Ashford, Asst. Surgeon, the order assigning him to station at Ft. Sam Houston, Texas, is revoked, and he is ordered to Ft. St. Philip, La., for duty at that post.
Capt. Edward Everts, Asst. Surgeon, upon the abandonment of Whipple Bks., Ariz., is ordered to Ft. Apache, Ariz.
First Lieut. Alexander S. Porter, Asst. Surgeon, is relieved from duty at Whipple Bks., Ariz., and upon expiration of his present leave of absence is ordered to San Diego Bks., Cal., for duty.
Capt. Joseph T. Clarke, Asst. Surgeon, is relieved from duty at Columbus Bks. Ohio, and ordered to Madison Bks., N. Y., for duty, relieving Capt. Paul Shillock, Asst. Surgeon. Capt. Shillock, upon being so relieved, will proceed to Key West, Fla., and report to the commanding officer Twenty-fifth Infantry for duty with that regiment.
Capt. Paul Shillock, Asst. Surgeon, so much of the order as directs him to proceed to Key West, Fla., and report to the commanding officer Twenty-fifth Infantry, is amended so as to direct him to proceed to Chickamauga National Park and report to the commanding officer of that regiment for duty with the first detachment thereof that may proceed to take station at Ft. Jefferson, Fla.